



TAMIL NADU PUBLIC SERVICE COMMISSION

Advertisement No.692

Notification No.11/2024

Date: 13.08.2024

Combined Technical Services Examination (Diploma / ITI Level)

Applications are invited only through online mode for direct recruitment to the posts in Combined Technical Services Examination (Diploma / ITI Level).

1. Important Instructions:

1.1. Candidates to ensure their eligibility for the examination:

All candidates are requested to carefully read the “Instructions to Applicants” available in the Commission’s website www.tnpsc.gov.in and this Notification. The candidates applying for the examination should ensure that they fulfill all eligibility conditions for admission to the examination. Their admission to all stages of the examination will be purely provisional, subject to their satisfying the eligibility conditions. Mere admission to the written examination / certificate verification / counselling or inclusion of name in the selection list will not confer on the candidates any right to appointment. The Commission reserves the right to reject candidature at any stage, after due process even after selection has been made, if a wrong claim or violation of rules or instructions is confirmed.

1.2. Important Dates and Time:

Date of Notification	13.08.2024	
Last date and time for submission of online application	11.09.2024 11.59 pm	
Application Correction Window period	15.09.2024 12.01 am to 17.09.2024 11.59 pm	
Date and Time of Examination		
Paper – I		
Subject	Date	Time
Tamil Eligibility Test, General Studies and Aptitude and Mental Ability Test	09.11.2024	09.30 am to 12.30 pm
Paper - II		
Subject Paper	Subject Code	Date
Agriculture	431	11.11.2024 to 14.11.2024
Architecture	323	
Automobile and Mechanical Engineering	310	
Civil Engineering	299	
Electrical Engineering / Electrical and Electronics Engineering	336	
Handloom Technology / Textile Technology / Textile Manufacture	339	
Instrumentation Engineering	448	
Mechanical Engineering	255	
Physical Education	354	
Printing Technology	248	
Stenography	378	

Town and Country Planning	325	11.11.2024 to 14.11.2024
Trade - Boiler Attendant	451	
Trade - Draughtsman (Civil)	388	
Trade - Electrician	438	
Trade - Fitter	436	
Trade - Instrument Mechanic	439	
Trade - Lab Technician	450	
Trade - Mechanic Motor Vehicle	437	
Trade - Mechanic Refrigeration and Air-Conditioner	435	
Trade - Surveyor	387	
Trade - Welder (Gas and Electric)	440	

1.2.1. The date and time of examination for the Paper-II-Subject Paper, will be informed only through Commission's website www.tnpsc.gov.in

1.3. How to Apply:

1.3.1. One Time Registration and Online Application:

Candidates are required to apply online by using the Commission's website www.tnpscexams.in. The candidate needs to register himself / herself first at the One Time Registration (OTR) platform, available on the Commission's website, and then proceed to fill up the online application for the examination. If the candidate is already registered, he / she can proceed straightway to fill up the online application for the examination.

1.3.2. Application Correction Window:

After the last date for submission of online application, the Application Correction Window will open for 3 days from 15.09.2024 to 17.09.2024. During this period, candidates will be able to edit the details in their online application. After the last date of the Application Correction Window period, no modification is allowed in the online application.

1.3.3. Post and Subject Paper Options:

Candidates should choose the post(s) and prescribed subject paper(s) for the post(s) and specify in the online application. The candidates should only choose the subject paper(s) in which they have obtained the educational qualification or equivalent qualification for appearing in the examination. The candidate will be considered for selection, only based on the prescribed subject paper chosen by the candidate for a particular post. Hence, the candidates shall carefully select the post options and subject paper options available in the online application.

1.3.4. The detailed instructions regarding how to apply and the examination centers are available in Annexure I of this Notification.

1.4. Banned Items:

1.4.1. Candidates are not allowed to bring mobile phone, pager or any electronic equipment or programmable device or storage media like pen drive, smart watches, watches and rings with in-built memory notes, etc., or camera or Bluetooth devices or communication chips or any other equipment or related accessories either in working or switched off mode capable of being used as a communication device into the examination hall / room. Candidates are not allowed to bring non-electronic devices such as P&G Design Data Book, mathematical and drawing instruments, log tables, stencils of maps, slide rules, books, notes, loose sheets, guides, rough sheets, hand bags into the examination hall / room.

1.4.2. If they are found to have any such things or instruments, they will not be allowed to write the examination, besides invalidation of the answer sheet and / or debarment and / or rejection of candidature. If it is considered necessary, they will be subjected to a thorough physical search including frisking on the spot.

1.4.3. Candidates are advised, in their own interest, not to bring any of the banned items including mobile phones to the venue of the examination, as arrangements for safekeeping of the same cannot be assured.

2. Warning:

2.1. All the recruitments by the Tamil Nadu Public Service Commission are purely merit-based. The Tamil Nadu Public Service Commission hereby cautions the candidates against touts and agents who may cheat, by making false promises of securing jobs through unfair means. The Tamil Nadu Public Service Commission shall not be responsible or liable for any loss that may be caused to any candidate on account of indulging in any sort of dealings with such unscrupulous elements.

2.2. Candidates are solely responsible for their claims in the online application. They cannot blame service providers like internet cafes / browsing centers / common service centers for the mistakes made while applying online for recruitment. Candidates are advised to check the filled-in online application before finally submitting the same.

3. Posts and Vacancies:

S. No	Name of the Post	Post Code	Name of the Department / Organization	Distribution of vacancies		Number of vacancies	Level of Pay
1	Assistant Tester	1908	Industries and Commerce	SC (G)	1	02	Level 13 CPS
				GT (W)	1		
2	Assistant Training Officer (Stenography - English)	1733	Employment and Training	SC (G)	1	03	
				MBC/DC (G) (PSTM)	1		
				BC (M) (G)	1		
3	Planning Assistant Grade-B	3484	Tamil Nadu Urban Habitat Development Board	MBC/DC (G)	1	03	
				GT (G)	1		
				SC (A) (W) (PSTM)	1		
4	Motor Vehicle Inspector Grade II	2119	Transport and Road Safety	Will be announced later		45	
5	Draughtsman, Grade-III	2114	Town and Country Planning	MBC/DC (G) (PSTM)	1	05	Level 11 CPS
				BC (OBCM) (G) (HH)	1		
				GT (G) (Ex-Ser)	1		
				GT (W) (PSTM)	1		
				BC (M) (G) (PSTM)	1		
6	Hostel Superintendent cum Physical Training Officer	1731	Employment and Training	GT (G)	1	02	
				SC (A) (G)	1		
7	Junior Draughting Officer	3120	Public Works	SC (G)	5	55**	
				SC (G) (PSTM)	1		
				SC (W)	2		
				MBC/DC (G)	6		
				MBC/DC (G) (PSTM)	2		
				MBC/DC (W)	2		
				MBC/DC (W) (ASD/ ID/SLD/MI/MD)	1		
				BC (OBCM) (G)	8		
				BC (OBCM) (G) (Ex-Ser)	1		
				BC (OBCM) (G) (PSTM)	2		

			Public Works	BC (OBCM) (W)	3		
				BC (OBCM) (W) (PSTM)	1		
				GT (G)	9		
				GT (G) (HH/Hi)	1		
				GT (G) (PSTM)	2		
				GT (W)	4		
				GT (W) (PSTM)	1		
				SC (A) (G)	1		
				SC (A) (G) (LV/VI)	1		
				BC (M) (G)	1		
				BC (M) (W)	1		
8	Junior Draughting Officer	3115	Highways	SC (G)	3	33**	
				SC (G) (Ex-Ser)	1		
				SC (W)	1		
				MBC/DC (G)	3		
				MBC/DC (G) (PSTM)	1		
				MBC/DC (W) (LV/VI)	1		
				MBC/DC (W) (PSTM)	1		
				BC (OBCM) (G)	4		
				BC (OBCM) (G) (Ex-Ser)	1		
				BC (OBCM) (G) (PSTM)	1		
				BC (OBCM) (W)	2		
				GT (G)	6		
				GT (G) (PSTM)	2		
				GT (W)	3		
				SC (A) (G)	1		
				BC (M) (G)	1		
				BC (M) (W)	1		
9	Junior Draughting Officer	3382	Hindu Religious and Charitable Endowments	SC (G)	3	39**	Level 11 CPS
				SC (G) (PSTM)	1		
				SC (W)	2		
				MBC/DC (G)	4		
				MBC/DC (G) (LD / CP / LC/DF/AC/MuD)	1		
				MBC/DC (G) (PSTM)	1		
				MBC/DC (W)	2		
				BC (OBCM) (G)	6		
				BC (OBCM) (G) (Ex-Ser)	1		
				BC (OBCM) (G) (PSTM)	1		
				BC (OBCM) (W)	3		
				GT (G)	4		
				GT (G) (Ex-Ser)	1		
				GT (G) (LV/VI)	1		
				GT (G) (PSTM)	2		
				GT (W)	3		
				GT (W) (G) (PSTM)	1		
				SC (A) (PSTM)	1		
				SC (A) (W) (PSTM)	1		

10	Junior Technical Assistant	3375	Handlooms	GT (G)	1	02	Level 11 CPS
				SC (A) (W) (PSTM)	1		
11	Special Overseer	3376	Adi Dravidar Welfare	SC (G)	2	22	
				SC (G) (PSTM)	1		
				SC (W)	1		
				MBC/DC (G)	2		
				MBC/DC(G) (PSTM)	1		
				MBC/DC (W)	1		
				BC (OBCM) (G)	3		
				BC (OBCM) (G) (PSTM)	1		
				BC (OBCM) (W)	2		
				GT (G)	3		
				GT (G) (PSTM)	1		
				GT (W)	2		
				SC (A) (W) (PSTM)	1		
				BC (M) (G)	1		
12	Surveyor	3378	Tamil Nadu Housing Board	SC (G) (PSTM)	1	15	
				SC (W)	1		
				MBC/DC (G)	2		
				MBC/DC (W)	1		
				BC (OBCM) (G)	3		
				BC (OBCM) (W)	1		
				GT (G)	2		
				GT (G) (Ex-Ser)	1		
				GT (G) (LV/VI)	1		
				GT (W)	1		
				SC (A) (G) (PSTM)	1		
13	Technical Assistant	3380	Tamil Nadu Police Housing Corporation Ltd.,	SC (G)	2	10	Level 11 EPF
				MBC/DC (G)	1		
				MBC/DC (W)	1		
				BC (OBCM) (G)	1		
				BC (OBCM) (G) (Ex-Ser)	1		
				BC (OBCM) (W) (PSTM)	1		
				GT (G)	2		
				GT (W)	1		
14	Assistant Agricultural Officer	3101	Agriculture	SC (G)	2	25	Level 10 CPS
				SC (W) (DW) (PSTM)	1		
				ST (W)	1		
				MBC/DC (G)	2		
				MBC/DC (G) (Ex-Ser)	1		
				MBC/DC (G) (PSTM)	1		
				MBC/DC (W)	1		
				BC (OBCM) (G)	3		
				BC (OBCM) (G) (Ex-Ser)	1		
				BC (OBCM) (G) (PSTM)	1		
				BC (OBCM) (W)	2		
				GT (G)	3		
				GT (G) (PSTM)	1		
				GT (W)	3		

				SC (A) (G) (PSTM)	1		
				BC (M) (W)	1		
15	Supervisor (Weaving)	3377	Tamil Nadu Textile Corporation Ltd.,	MBC/DC (G)	1	04	Level 10 EPF
				BC (OBCM) (G)	1		
				GT (G)	1		
				SC (A) (W) (DW) (PSTM)	1		
16	Technical Assistant	3379	Tamil Nadu Small Industries Development Corporation Ltd.,	SC (G)	1	15	
				SC (W) (DW)	1		
				MBC/DC (G)	2		
				MBC/DC (W) (DW)	1		
				BC (OBCM) (G)	2		
				BC (OBCM) (W) (DW)	1		
				BC (OBCM) (G) (PSTM)	1		
				GT (G)	2		
				GT (W) (DW)	1		
				GT (G) (PSTM)	1		
				SC (A) (W) (DW) (PSTM)	1		
				BC (M) (G)	1		
17	Executive (Lab)	3290	Tamil Nadu Co-operative Milk Producers' Federation Ltd.,	SC (G)	1	09	Level 9 @
				MBC/DC (G)	1		
				MBC/DC (W) (DW)	1		
				BC (OBCM) (G)	2		
				BC (OBCM) (W) (DW)	1		
				GT (G)	1		
				GT (W) (DW)	1		
				SC (A) (W) (DW) (PSTM)	1		
18	Technician (Auto Mechanic)	3325		BC (OBCM) (W) (DW)	1	02	Level 8 @
				GT (G)	1		
19	Technician (Boiler)	3326		SC (G)	1	08	
				SC (W) (DW)	1		
				MBC/DC (G)	1		
				MBC/DC (G) (PSTM)	1		
				BC (OBCM) (G) (PSTM)	1		
				BC (OBCM) (W)	1		
				GT (W)	1		
				BC (M) (G)	1		
20	Technician (Electrical)	3327		SC (G)	2	11	
				MBC/DC (G) (LD / CP / LC/DF/AC/MuD)	1		
				MBC/DC (W)	1		
				BC (OBCM) (G)	2		
				BC (OBCM) (G) (Ex-Ser)	1		
				GT (G)	1		
				GT (G) (PSTM)	1		
				GT (W) (PSTM)	1		
				BC (M) (W) (DW)	1		
21	Technician (Lab)	3328		SC (G)	2	17	
				MBC/DC (G)	1		

			Tamil Nadu Co-operative Milk Producers' Federation Ltd.,	MBC/DC (G) (LD / CP /LC/DF/AC/MuD)	1		Level 8 @
				MBC/DC (W)	1		
				BC (OBCM) (G)	2		
				BC (OBCM) (G) (Ex-Ser)	1		
				BC (OBCM) (W)	1		
				GT (G)	2		
				GT (G) (Ex-Ser)	1		
				GT (G) (PSTM)	1		
				GT (W)	1		
				GT (W) (PSTM)	1		
				SC (A) (G) (PSTM)	1		
				BC (M) (W) (DW)	1		
22	Technician (Operation)	3329		SC (G)	3	35**	
				SC (W)	2		
				MBC/DC (G)	3		
				MBC/DC (G) (PSTM)	1		
				MBC/DC (W)	3		
				BC (OBCM) (G)	2		
				BC (OBCM) (G) (ASD/ ID/ SLD/MI/MD)	1		
				BC (OBCM) (G) (Ex-Ser)	1		
				BC (OBCM) (G) (LV/VI)	1		
				BC (OBCM) (G) (PSTM)	1		
				BC (OBCM) (W)	2		
				BC (OBCM) (W) (PSTM)	1		
				GT (G)	6		
				GT (W) (DW)	1		
				GT (G) (Ex-Ser)	1		
				GT (G) (PSTM)	1		
				GT (W)	2		
				GT (W) (PSTM)	1		
				SC (A) (W) (PSTM)	1		
				BC (M) (G) (PSTM)	1		
23	Technician (Refrigeration)	3330		SC (G)	1	04	
				MBC/DC (G)	1		
				BC (OBCM) (G) (PSTM)	1		
				BC (M) (G)	1		
24	Technician (Tyre)	3331		SC (A) (W) (DW) (PSTM)	1	01	
25	Technician (Welding)	3332		MBC/DC (W) (DW)	1	01	
26	Draftsman		Survey and Land Records				Level 8 CPS
	Ariyalur	3406		SC (W) (DW)	1	03	
				MBC/DC (G)	1		
				GT (G) (PSTM)	1		
	Chennai	3408		SC (G)	2	12	

				MBC/DC (G) (Ex-Ser)	1		
				MBC/DC (G) (LD / CP / LC/DF/AC/MuD)	1		
				MBC/DC (W)	1		
				BC (OBCM) (G)	1		
				BC (OBCM) (G) (Ex-Ser)	1		
				GT (G)	2		
				GT (W)	1		
				GT (W) (PSTM)	1		
				BC (M) (W) (DW)	1		
	Coimbatore	3409		SC (G) (PSTM)	1	11	
				SC (W) (PSTM)	1		
				MBC/DC (G)	2		
				MBC/DC (W)	1		
				BC (OBCM) (G)	1		
				BC (OBCM) (W)	1		
				GT (G)	2		
				GT (W)	1		
				BC (M) (G)	1		
	Cuddalore	3410		SC (W)	1	03	
				MBC/DC (G)	1		
				BC (OBCM) (G)	1		
	Dharmapuri	3411		SC (G) (Ex-Ser)	1	05	
				MBC/DC (W) (PSTM)	1		
				BC (OBCM) (G)	1		
				BC (OBCM) (W)	1		
				GT (W)	1		
	Dindigul	3412		MBC/DC (G) (Ex-Ser)	1	02	
				GT (W)	1		
	Erode	3413		MBC/DC (G) (Ex-Ser)	1	03	
				GT (G)	1		
				GT (W)	1		
	Kancheepuram	3415		GT (G) (PSTM)	1	02	
				SC (G)	1		
	Karur	3417		BC (OBCM) (G)	1	03	
				BC (OBCM) (W)	1		
				GT (W)	1		
	Krishnagiri	3418		SC (G)	1	09	
				MBC/DC (G)	1		
				MBC/DC (G) (LD / CP / LC/ DF/AC/Mud)	1		
				BC (OBCM) (G)	1		
				BC (OBCM) (G) (Ex-Ser)	1		
				GT (G) (PSTM)	1		
				GT (W) (PSTM)	1		
				SC (A) (G) (PSTM)	1		
				BC (M) (W) (DW)	1		
	Mayiladuthurai	3420		MBC/DC (W) (DW)	1	02	
				BC (OBCM) (W) (DW)	1		
	Nagapattinam	3421		MBC/DC (G) (Ex-Ser)	1	03	
				BC (OBCM) (W) (PSTM)	1		

Survey and
Land Records

Level
8
CPS

			GT (W)	1				
Namakkal	3422		SC (G)	1	05			
			MBC/DC (G) (LD/CP/ LC/ DF/AC/Mud)	1				
			BC (OBCM) (G)	1				
			BC (OBCM) (G) (Ex-Ser)	1				
			GT (W) (PSTM)	1				
Perambalur	3423		SC (G)	1	01			
Pudukkottai	3424		MBC/DC (G) (Ex-Ser)	1	04			
			MBC/DC (W)	1				
			BC (OBCM) (G)	1				
			GT (G)	1				
Ramanathapuram	3425		SC (G) (PSTM)	1	08			
			SC (W)	1				
			MBC/DC (W)	1				
			BC (OBCM) (G)	2				
			GT (G)	1				
			GT (G) (LV/VI)	1				
			GT (W)	1				
Sivagangai	3428		SC (G)	1	06			
			MBC/DC (W)	1				
			BC (OBCM) (G)	1				
			GT (G)	2				
			BC (M) (W) (DW)	1				
Thanjavur	3430		GT (W) (PSTM)	1	02			
			BC (M) (W) (DW)	1				
The Nilgiris	3431	Survey and Land Records	SC (G)	1	13	Level 8 CPS		
			ST (G) (PSTM)	1				
			MBC/DC (G) (Ex-Ser)	1				
			MBC/DC (G) (LD/CP/ LC/DF/AC/Mud)	1				
			MBC/DC (W)	1				
			BC (OBCM) (G)	1				
			BC (OBCM) (G) (Ex-Ser)	1				
			BC (OBCM) (W) (PSTM)	1				
			GT (G)	2				
			GT (W)	1				
			GT (W) (PSTM)	1				
			BC (M) (W) (DW)	1				
Theni	3432			MBC/DC (G)	1		04	
				BC (OBCM) (G)	1			
				GT (G) (PSTM)	1			
				SC (A) (G) (PSTM)	1			
Thiruvallur	3433			SC (G)	1		03	
				MBC/DC (W) (PSTM)	1			
				GT (G)	1			
Thiruvannamalai	3434			BC (OBCM) (G)	1		01	
Thiruvarur	3435		SC (G)	1	06			
			MBC/DC (W)	1				
			BC (OBCM) (G)	1				

	Thoothukudi	3436	Survey and Land Records	GT (G)	1	07	Level 8 CPS	
				GT (W) (PSTM)	1			
				BC (M) (DW)	1			
				SC (W)	1			
				ST (G) (PSTM)	1			
				MBC/DC (G)	1			
				MBC/DC (G) (Ex-Ser)	1			
				BC (OBCM) (W) (PSTM)	1			
				GT (G)	1			
	GT (W)	1						
	Tiruchirappalli	3437		MBC/DC (G)	1	04		
				BC (OBCM) (G)	1			
				GT (G) (PSTM)	1			
				SC (A) (G) (PSTM)	1			
				GT (W) (DW)	1			01
	Tirupattur	3439		MBC/DC (G) (LD/CP/ LC/DF/AC/Mud)	1	03		
	Tiruppur	3440			BC (OBCM) (G) (Ex-Ser)			1
					GT (W) (PSTM)			1
				SC (G)	1	02		
	Villupuram	3442		GT (G)	1			
	Virudhunagar	3443		MBC/DC (G)	1	02		
				GT (W)	1			
				SC (G)	1			12
	Central Survey Office	2900		SC (G) (PSTM)	1			
				SC (W) (PSTM)	1			
				MBC/DC (G)	2			
				MBC/DC (G) (PSTM)	1			
				BC (OBCM) (G)	2			
				BC (OBCM) (W) (PSTM)	1			
				GT (G)	2			
				GT (W)	1			
27			Field Surveyor					
	Chengalpattu	3445	MBC/DC (G)	2	09			
			BC (OBCM) (G)	1				
			BC (OBCM) (W)	1				
			GT (G)	1				
			GT (G) (Ex-Ser)	1				
			GT (G) (PSTM)	1				
			GT (W)	1				
			SC (A) (G) (PSTM)	1				
	Chennai	3446	SC (W)	1	03			
			GT (G)	1				
			GT (G) (LV/VI)	1				
	Coimbatore	3447	BC (OBCM) (G)	1	04*			
			BC (OBCM) (G) (ASD/ ID/SLD/MI/MD)	1				
			BC (OBCM) (W) (PSTM)	1				
			GT (G)	1				
	Cuddalore	3448	SC (G)	1	29			

				SC (G) (Ex-Ser)	1		
				SC (W)	1		
				MBC/DC (G)	3		
				MBC/DC (G) (PSTM)	1		
				MBC/DC (W)	2		
				BC (OBCM) (G)	4		
				BC (OBCM) (Ex-Ser) (PSTM)	1		
				BC (OBCM) (G) (PSTM)	1		
				BC (OBCM) (W)	1		
				BC (OBCM) (W) (ASD/ID/SLD/MI/ MD)	1		
				GT (G)	5		
				GT (G) (PSTM)	1		
				GT (W)	2		
				GT (W) (PSTM)	1		
				SC (A) (W)	1		
				BC (M) (G)	1		
				BC (M) (W)	1		
	Dharmapuri	3449		BC (OBCM) (W)	1	02	
				GT (G) (PSTM)	1		
	Dindigul	3450		BC (OBCM) (G) (PSTM)	1	01	
	Erode	3451		MBC/DC (W)	1	01	
	Kallakurichi	3452	Survey and Land Records	SC (W)	1	11	Level 8 CPS
				MBC/DC (G)	2		
				BC (OBCM) (G)	1		
				BC (OBCM) (W)	1		
				GT (G)	1		
				GT (G) (Ex-Ser)	1		
				GT (G) (LV/VI)	1		
				GT (G) (PSTM)	1		
				GT (W)	1		
				SC (A) (G) (PSTM)	1		
	Kancheepuram	3453		SC (G)	1	07	
				MBC/DC (G)	1		
				MBC/DC (W)	1		
				BC (OBCM) (G)	1		
				GT (G)	1		
				GT (W) (PSTM)	1		
				BC (M) (G)	1		
	Kanyakumari	3454		SC (G) (Ex-Ser)	1	03	
				MBC/DC (G) (PSTM)	1		
				BC (OBCM) (G)	1		
	Karur	3455		SC (G)	1	01	
	Krishnagiri	3456		MBC/DC (G)	1	02	
				BC (M) (G)	1		
	Madurai	3457		GT (W)	1	01	
	Mayiladuthurai	3458		SC (G)	1	03	
				BC (OBCM) (G) (PSTM)	1		

				BC (M) (G)	1		
				SC (G)	1	06*	
				BC (OBCM) (G) (ASD/ ID/SLD/MI/MD)	1		
				BC (OBCM) (G) (PSTM)	1		
				GT (G) (PSTM)	1		
				GT (W)	1		
				SC (A) (W) (PSTM)	1		
				SC (G)	1	19*	
				SC (G) (PSTM)	1		
				SC (W)	1		
				MBC/DC (G)	2		
				MBC/DC (G) PSTM)	1		
				MBC/DC (W)	1		
				BC (OBCM) (G)	2		
				BC (OBCM) (G) (ASD/ ID/SLD/MI/MD)	1		
				BC (OBCM) (LV/VI)	1		
				BC (OBCM) (W)	1		
				GT (G)	3		
				GT (G) (PSTM)	1		
				GT (W)	1		
				SC (A) (G)	1		
				BC (M) (W)	1		
				SC (G)	1	10*	
				SC (W)	1		
				MBC/DC (G)	2		
				BC (OBCM) (G)	2		
				BC (OBCM) (G) (ASD/ ID/SLD/MI/MD)	1		
				BC (OBCM) (G) (Ex-Ser)	1		
				GT (G)	1		
				GT (W) (DW)	1		
				SC (G) (PSTM)	1	07	
				SC (W)	1		
				MBC/DC (G)	1		
				MBC/DC (W)	1		
				BC (OBCM) (G)	1		
				GT (G)	1		
				GT (G) (LV/VI)	1		
				BC (OBCM) (G)	1	02	
				GT (G)	1		
				SC (G)	1	14*	
				SC (G) (PSTM)	1		
				MBC/DC (G)	1		
				MBC/DC (W)	1		
				BC (OBCM) (G)	2		
				BC (OBCM) (G) (ASD/ ID/SLD/MI/MD)	1		
				BC (OBCM) (G) (LV/VI)	1		

				BC (OBCM) (W)	1		
				GT (G)	2		
				GT (G) (PSTM)	1		
				GT (W)	1		
				BC (M) (W)	1		
Tenkasi	3467			SC (G)	1	08	
				MBC/DC (G)	1		
				MBC/DC (G) (LD / CP / LC/ DF/AC/Mud)	1		
				BC (OBCM) (G)	1		
				BC (OBCM) (G) (Ex-Ser)	1		
				GT (G) (PSTM)	1		
				GT (W) (PSTM)	1		
				BC (M) (W) (DW)	1		
Thanjavur	3468			SC (G)	2	22*	
				SC (W)	1		
				ST (G)	1		
				MBC/DC (G)	1		
				MBC/DC (G) (Ex-Ser)	1		
				MBC/DC (W)	1		
				MBC/DC (W) (PSTM)	1		
				BC (OBCM) (G)	4		
				BC (OBCM) (G) (ASD/ ID/SLD/MI/MD)	1		
				BC (OBCM) (G) (PSTM)	1		
				BC (OBCM) (W)	1		
				GT (G)	4		
				GT (G) (PSTM)	1		
				GT (W)	1		
				BC (M) (G)	1		
The Nilgiris	3469			SC (G)	1	07	
				SC (W) (PSTM)	1		
				MBC/DC (W)	1		
				BC (OBCM) (G)	1		
				BC (OBCM) (G) (PSTM)	1		
				GT (G)	1		
				GT (W) (HH/HI)	1		
Thiruvallur	3471			SC (G)	2	21	
				SC (W)	1		
				ST (G)	1		
				MBC/DC (G)	2		
				MBC/DC (G) (Ex-Ser)	1		
				MBC/DC (W)	1		
				BC (OBCM) (G)	3		
				BC (OBCM) (G) (PSTM)	1		
				BC (OBCM) (W)	1		
				GT (G)	3		
				GT (G) (Ex-Ser)	1		
				GT (G) (PSTM)	1		

			Survey and Land Records			Level 8 CPS
--	--	--	----------------------------	--	--	-------------------

				GT (W)	1	17	Level 8 CPS
				GT (W) (PSTM)	1		
				BC (M) (G)	1		
				SC (G)	1		
Thiruvannamalai	3472	Survey and Land Records		SC (W)	1		
				MBC/DC (G)	1		
				MBC/DC (W) (DW)	1		
				MBC/DC (G) (HH/HL)	1		
				MBC/DC (W)	1		
				BC (OBCM) (G)	1		
				BC (OBCM) (G) (PSTM)	1		
				BC (OBCM) (W)	2		
				GT (G)	2		
				GT (G) (Ex-Ser)	1		
				GT (W)	1		
				GT (W) (PSTM)	1		
				SC (A) (G)	1		
	BC (M) (G)		1				
Thiruvavarur	3473			SC (G)	1	11	
				SC (G) (PSTM)	1		
				MBC/DC (G)	2		
				BC (OBCM) (G)	2		
				BC (OBCM) (W)	1		
				GT (G)	2		
				GT (G) (PSTM)	1		
Thoothukudi	3474			GT (W)	1	19*	
				SC (G)	1		
				SC (G) (PSTM)	1		
				MBC/DC (G)	2		
				MBC/DC (G) (PSTM)	1		
				MBC/DC (W)	1		
				BC (OBCM) (G)	2		
				BC (OBCM) (G) (ASD/ ID/SLD/MI/MD)	1		
				BC (OBCM) (W) (DW)	1		
				BC (OBCM) (G) (LV/VI)	1		
				BC (OBCM) (W)	1		
				GT (G)	3		
				GT (G) (PSTM)	1		
Tiruchirappalli	3475			GT (W)	1	16	
				SC (A) (G)	1		
				BC (M) (W)	1		
				SC (G) (LD/CP/LC/DF/AC/MuD)	1		
				SC (W)	1		
				MBC/DC (G)	2		
				MBC/DC (G) (PSTM)	1		
	BC (OBCM) (G)		2				
	BC (OBCM) (W) (DW)		1				
	BC (OBCM) (G) (PSTM)		1				
	GT (G)		3				

28			Survey and Land Records	GT (G) (PSTM)	1	06	Level 8 CPS			
				GT (W)	1					
				SC (A) (G)	1					
				BC (M) (W)	1					
	Tirunelveli	3476		SC (W)	1					
				MBC/DC (G)	1					
				BC (OBCM) (G) (PSTM)	1					
				GT (G)	1					
				GT (G) (Ex-Ser)	1					
				SC (A) (G)	1					
	Tirupathur	3477		BC (OBCM) (G)	1			04		
				BC (OBCM) (W) (DW)	1					
				GT (G)	1					
				GT (G) (PSTM)	1					
	Tiruppur	3478		SC (G)	1	13				
				SC (W)	1					
				MBC/DC (G)	1					
				MBC/DC (G) (PSTM)	1					
				MBC/DC (W)	1					
				BC (OBCM) (G)	2					
				BC (OBCM) (G) (ASD/ ID/SLD/MI/MD)	1					
				BC (OBCM) (W)	1					
				GT (G)	2					
				GT (G) (Ex-Ser)	1					
				GT (W) (PSTM)	1					
				Vellore	3479			ST (G)	1	06
								MBC/DC (G) (Ex-Ser)	1	
								BC (OBCM) (G)	2	
	GT (G)	1								
	GT (G) (PSTM)	1								
	Villupuram	3480				SC (G)		1	13	
				SC (G) (PSTM)	1					
				MBC/DC (W) (DW)	1					
				MBC/DC (G) (PSTM)	1					
				BC (OBCM) (G)	3					
				BC (OBCM) (W)	1					
				BC (OBCM) (W) (PSTM)	1					
				GT (G)	1					
				GT (G) (PSTM)	1					
				GT (W)	2					
	Virudhunagar	3481		GT (W)	1	01				
	28	Surveyor-cum- Assistant Draughtsman		3234	Town and Country Planning	SC (G)		3	42**	
						SC (G) (Ex-Ser)		1		
						SC (G) (PSTM)		1		
						SC (W)		1		
						SC (W) (PSTM)		1		
MBC/DC (G)			3							
MBC/DC (W) (DW)			1							
MBC/DC (G) (HH/Hi)			1							
MBC/DC (G) (PSTM)			1							
MBC/DC (W)			2							

				BC (OBCM) (G)	5		
				BC (OBCM) (Ex-Ser) (PSTM)	1		
				BC (OBCM) (G) (PSTM)	2		
				BC (OBCM) (W)	2		
				BC (OBCM) (W) (PSTM)	1		
				GT (G)	7		
				GT (G) (Ex-Ser)	1		
				GT (G) (PSTM)	1		
				GT (W)	3		
				GT (W) (PSTM)	1		
				SC (A) (G)	1		
				BC (M) (G)	2		
29.	Technical Assistant	3381	Tamil Nadu Textbook and Educational Services Corporation	SC (G)	1	10	Level 8 CPS
				MBC/DC (G)	1		
				MBC/DC (W) (DW)	1		
				BC (OBCM) (G)	2		
				BC (OBCM) (W) (DW)	1		
				GT (G)	2		
				GT (W) (DW)	1		
				SC (A) (DW) (PSTM)	1		
Total						861	
* including backlog vacancies							
** Vacancies deducted for reservation for meritorious sportspersons(3%)							
Abbreviations:							
CPS - Contributory Pension Scheme							
EPF - Employees' Provident Fund							
@ - The payment of terminal benefits is as per the provisions available in the Special Bye-Laws							

3.1. The number of vacancies notified is tentative and is liable for modification, before the publication of the results of the examination. Whenever the vacancies are revised, the number of candidates selected for the successive stages will also be revised commensurately.

3.2. The Commission reserves the right to include additional posts with different nomenclature and having similar eligibility conditions, as announced in this notification.

4. Eligibility Conditions:

4.1. Age Limit: (as on 01.07.2024)

The candidates should have completed the age of 18 years for all posts, except for the post of Motor Vehicle Inspector, Grade-II (Post Code 2119). For the post of Motor Vehicle Inspector, Grade-II (Post Code 2119) candidates should have completed the minimum age of 21 years. The category wise maximum age limit and age concession details are given below.

4.1.1. Others (Candidates not belonging to SCs, SC(A)s, STs, MBCs/DCs, BC(OBCM)s and BCMs):

S. No	Name of the Post	Post Code	Maximum Age (Should not have completed)	Age Concession		
				Persons with Benchmark Disability	Ex-Servicemen	Destitute Widow
1	Motor Vehicle Inspector, Grade-II	2119	34	NA	50	No Maximum Age Limit
2	Draughtsman, Grade-III	2114	32	42	50	
3	Surveyor-cum-Assistant Draughtsman	3234				
4	Junior Draughting Officer	3115				
5	Junior Draughting Officer	3120	32	42	32*	
6	Draftsman	Refer Table in Para No.3	32	42	32*	
7	Field Surveyor		37@	47@	37@*	
			32	42	32*	
			37@	47@	37@*	
8	Assistant Tester	1908	37	NA	50	
9	Assistant Training Officer (Stenography-English)	1733	37	NA	50	
10	Hostel Superintendent cum Physical Training Officer	1731	37	47	50	
11	Special Overseer	3376	32	42	50	
12	Junior Draughting Officer	3382				
13	Planning Assistant, Grade-B	3484				
14	Junior Technical Assistant	3375				
15	Surveyor	3378				
16	Technical Assistant	3380				
17	Assistant Agricultural Officer	3101				
18	Supervisor (Weaving)	3377				
19	Technical Assistant	3379				
20	Executive (Lab)	3290				
21	Technician (Auto Mechanic)	3325				
22	Technician (Boiler)	3326				
23	Technician (Electrical)	3327				
24	Technician (Lab)	3328				
25	Technician (Operation)	3329				
26	Technician (Refrigeration)	3330				
27	Technician (Tyre)	3331				
28	Technician (Welding)	3332				
29	Technical Assistant	3381				
* After deducting the period spent in Defence services @ - Candidates trained in Survey in the Industrial Training Institute, Ambattur NA – Not applicable, since persons with benchmark disability are not eligible to apply for this post						

4.1.2. BC (OBCM)s, BCMs, MBCs/DCs, SCs, SC(A)s and STs:

Sl. No	Name of the Post	Post Code	Maximum Age (Should not have completed)	Age Concession		
				Persons with Benchmark Disability	Ex-Service men	Destitute Widow
1	Assistant Tester	1908	No Maximum Age Limit	NA	No Maximum Age Limit	
2	Assistant Training Officer (Stenography-English)	1733				
3	Motor Vehicle Inspector, Grade-II	2119				
4	Draughtsman, Grade-III	2114	No Maximum Age Limit			
5	Surveyor-cum-Assistant Draughtsman	3234				
6	Junior Draughting Officer	3120				
7	Junior Draughting Officer	3115				
8	Planning Assistant, Grade-B	3484				
9	Hostel Superintendent cum Physical Training Officer	1731				
10	Junior Draughting Officer	3382				
11	Junior Technical Assistant	3375				
12	Special Overseer	3376				
13	Surveyor	3378				
14	Technical Assistant	3380				
15	Assistant Agricultural Officer	3101				
16	Supervisor (Weaving)	3377				
17	Technical Assistant	3379				
18	Executive (Lab)	3290				
19	Technician (Auto Mechanic)	3325				
20	Technician (Boiler)	3326				
21	Technician (Electrical)	3327				
22	Technician (Lab)	3328				
23	Technician (Operation)	3329				
24	Technician (Refrigeration)	3330				
25	Technician (Tyre)	3331				
26	Technician (Welding)	3332				
27	Draftsman	Refer Table in Para No.3				
28	Field Surveyor					
29	Technical Assistant	3381				
Abbreviations: BC(OBCM) - Backward Classes (Other than Backward Class Muslims) BCM - Backward Class Muslims MBC / DC - Most Backward Classes / Denotified Communities SC - Scheduled Castes SC(A) - Scheduled Castes (Arunthathiyars) ST - Scheduled Tribes NA – Not applicable, since persons with benchmark disability are not eligible to apply for this post						

4.1.3. No maximum age limit shall mean that the candidates should not have completed 60 years of age as on 1.7.2024 or at the time of selection / appointment to the post.

4.1.4. Candidates claiming age concession should upload / produce the supporting documents for

such a claim. Failure to upload / produce such a document shall result in the rejection of candidature after due process.

4.2. Supporting Documents:

4.2.1. The date of birth will be verified against the tenth standard (SSLC) or twelfth standard (HSC) mark sheet, issued by the Tamil Nadu Board of Secondary Education and Tamil Nadu Board of Higher Secondary Education respectively.

4.2.2. Those candidates whose date of birth is not mentioned in their tenth standard / twelfth standard mark sheet must upload / produce their Birth Certificate / Transfer Certificate/ Degree Mark Sheets, instead of the tenth standard or twelfth standard mark sheet. Any other form of evidence will not be accepted.

4.2.3. Failure to upload / produce such a document shall result in the rejection of candidature after due process.

4.3. Educational, Technical Qualification and Experience:

S. No.	Name of the Post	Post Code	Qualification and Experience
1	Assistant Tester	1908	<p>(i) A degree or diploma in Electrical Engineering or Electronics Engineering of any recognized Institution or Board*; and</p> <p>(ii) Practical experience for a period of six months in the field of electrical testing in the case of degree holders and one and half years in the case of diploma holders in the recognized concern**</p> <p>Note: Other things being equal, preference shall be given to persons who have completed one year of apprenticeship under the Government of India scheme or one year of Training under the State Government Apprenticeship Scheme</p> <p>Explanation:</p> <p>* Recognised Institution or Board shall mean an Institution or Board recognised by the Government of India or by any of the State Governments</p> <p>** Recognised Concern shall mean an Industrial or Engineering Establishment having facilities for wide range of practical work and recognised by the Government of India or by any of the State Government or by the State Board of Technical Education and Training, Madras for affording practical training to candidates or any large or medium or small scale factory registered under the Factories Act, 1948, (Central Act LXIII of 1948) or the Director of Industries and Commerce, Chennai as a small scale industry using power and employing not less ten persons in its manufacturing processes.</p>
2	Assistant Training Officer (Stenography-English)	1733	<p>(i) Must have been declared eligible for college course of study under the old 11 years schooling or must have been declared eligible for admission to the Higher Secondary Course Under the present 10 years schooling; and</p> <p>(ii) Must have passed the Government Technical Examination in Typewriting by the Senior Grade (Formerly Higher Grade)(English) and in Shorthand by the Senior Grade (English); and</p> <p>(iii) Must have passed the Government Technical Examination in Typewriting by the Junior Grade (Formerly Lower Grade) (Tamil) and in Shorthand by Junior Grade (Tamil)</p>

			<p>(iv) Must possess experience as stenographer in English for a period of not less than two years</p> <p>(v) Other things being equal, preference shall be given to candidates, who possess teaching experience for a period of not less than one year</p>
3	Planning Assistant, Grade-B	3484	<p>(i) Must possess a Diploma in Civil Engineering awarded by the State Board of Technical Education and Training, Madras; or</p> <p>(ii) Must possess a Diploma in Architecture (Architectural Assistantship) awarded by the State Board of Technical Education and Training, Madras</p>
4	Motor Vehicle Inspector, Grade II	2119	<p>(i) Minimum General Educational Qualification</p> <p>(ii) A Diploma in Automobile Engineering (Three year course) or a Diploma in Mechanical Engineering (Three year course) awarded by any institution recognized by the Central Government or State Government / awarded by the State Board of Technical Education and Training, Tamil Nadu; and</p> <p>(iii) Must hold a valid driving license authorising to drive motor cycle with gear and light motor vehicle</p>
5	Draughtsman, Grade-III	2114	<p>(i) Must possess a Post Diploma in Town and Country Planning awarded by the Government of Tamil Nadu; or</p> <p>(ii) Must possess a Diploma in Civil Engineering or Diploma in Architectural Assistantship awarded by the State Board of Technical Education and Training or its equivalent with experience in Civil Engineering field for a period of not less than three years</p>
6	Hostel Superintendent cum Physical Training Officer	1731	<p>(i) Must possess a Diploma in Physical Education issued by any University or Institution or</p> <p>(ii) Must possess the Teachers Certificate in Physical Education (Higher Grade) and Teaching Experience for a period of not less than one year and</p> <p>(iii) Must have been declared eligible for admission to the college course of study under the old 11 year schooling or Must have been declared eligible for admission to the Higher Secondary Course under the present 10 year schooling</p>
7	Junior Draughting Officer	3120	<p>(i) Diploma in Civil Engineering awarded by the State Board of Technical Education and Training, Tamil Nadu or its equivalent qualification recognized by the Director General of Employment and Training, Government of India or by the All India Council for Technical Education; or</p> <p>(ii) Diploma in Architectural Assistantship awarded by the State Board of Technical Education and Training, Tamil Nadu or its equivalent qualification recognized by the Director General of Employment and Training, Government of India or by the All India Council for Technical Education</p>
8	Junior Draughting Officer	3115	<p>(i) A Diploma in Civil Engineering or its equivalent from any University or Institution awarded by the State Board of Technical Education and Training of the concerned State Government;</p> <p>(ii) Other things being equal, preference shall be given, to those who have undergone one year apprenticeship training under the Government of India Scheme or the State Government Apprenticeship Scheme</p>

9	Junior Draughting Officer	3382	(i) Diploma in Civil Engineering or its equivalent from any institute recognized by the All India Council for Technical Education (ii) Other things being equal preference shall be given to candidates as follows:	
			First	Candidates who hold a degree in Bachelor of Technology in Traditional Architecture awarded by the Government College of Architecture and Sculpture, Mamallapuram
			Second	Candidates who hold a degree in Bachelor of Fine Arts in Traditional Sculpture awarded by the Government College of Architecture and Sculpture, Mamallapuram
10	Junior Technical Assistant	3375	(i) Must possess the minimum general educational qualification and (ii) Must possess a Diploma in Handloom Technology obtained from the Indian Institute of Handloom Technology, Salem or Varanasi or from any other recognised Institute of Handloom Technology; or (iii) Diploma in Textile Manufacture obtained from the Technological Diploma Examination Board, Madras or the State Board of Technical Education and Training, Tamil Nadu	
11	Special Overseer	3376	(i) A Diploma in Civil Engineering awarded by the State Board of Technical Education and Training, Chennai (ii) Preference will be given to the candidates belonging to the Scheduled Castes	
12	Surveyor	3378	(i) A Diploma in Civil Engineering from any Institute approved by All India Council for Technical Education; or (ii) National Trade Certificate in the trade of Surveyor awarded by National Council for Vocational Training (for Surveyor); or (iii) A Certificate in Army Trade Surveyor (field) issued by Madras Engineering Group	
13	Technical Assistant	3380	A Diploma in Civil Engineering recognized by Tamil Nadu Government or its equivalent	
14	Assistant Agricultural Officer	3101	(i) Must have passed Higher Secondary (plus two) Examination (ii) Must possess two years Diploma in Agriculture from the Institution recognized by the Government of Tamil Nadu or affiliated with the Tamil Nadu Agricultural University; or Gandhigram Rural Institute, Dindigul District or Annamalai University or any other institution under the control of the Commissioner of Agriculture	
15	Supervisor (Weaving)	3377	(i) A Diploma in Textile Technology / B.Sc. Textile Technology / B. Tech., Textile Technology (ii) Preferable: Computer on Office Automation (Certificate issued by the Directorate of Technical Education, Chennai)	
16	Technical Assistant	3379	Diploma in Civil Engineering	
17	Executive (Lab)	3290	(i) Must possess Degree in Science (ii) Must possess 2 years Diploma in Lab (Technician) issued by the Government / Government approved Institutions	
18	Technician (Auto Mechanic)	3325	(i) Must have passed SSLC or its equivalent. (ii) Should possess Industrial Training Institute (ITI) certificate in the trade of Fitter / Mechanic Motor Vehicle with National Trade Certificate (NTC) (or) Diploma in Automobile / Mechanical Engineering	

19	Technician (Boiler)	3326	(i) Must have passed SSLC or its equivalent (ii) Should possess Boiler Attendant Certificate Grade II / III issued by the Director of Boiler, Chennai to operate boilers as per the norms prescribed by the authority
20	Technician (Electrical)	3327	(i) Must have passed SSLC or its equivalent (ii) Should possess Industrial Training Institute certificate in the trade of Electrician with National Trade Certificate and 'B' Licence (or) Diploma in Electrical and Electronics Engineering and "C" Licence
21	Technician (Lab)	3328	(i) Must possess a pass in SSLC or its equivalent (ii) Must possess 2 years Diploma in Lab (Technician) issued by the Government / Government approved Institutions
22	Technician (Operation)	3329	(i) Must have passed SSLC or its equivalent (ii) Should possess Industrial Training Institute certificate in the trade of Mechanic Refrigeration and Air conditioner / Fitter / Mechanic Motor Vehicle / Electrician / Instrument Mechanic with National Trade Certificate (NTC) (or) Diploma in Mechanical / Electrical and Electronics / Instrumentation and Control Engineering
23	Technician (Refrigeration)	3330	(i) Must have passed SSLC or its equivalent (ii) Should possess Industrial Training Institute certificate in Mechanic Refrigeration and Air conditioner with National Trade Certificate (or) Diploma in Mechanical Engineering
24	Technician (Tyre)	3331	(i) Must have passed SSLC or its equivalent (ii) Should possess Industrial Training Institute certificate in Fitter trade with National Trade Certificate (or) Diploma in Automobile / Mechanical Engineering
25	Technician (Welding)	3332	(i) Must have passed SSLC or its equivalent (ii) Should possess Industrial Training Institute certificate in the trade of Welder (Gas and Electric) with National Trade Certificate
26	Draftsman	Refer Table in Para No.3	(i) A Diploma in Civil Engineering from any Institute approved by All India Council for Technical Education (or) (ii) National Trade Certificate (NTC) in the trade of Draftsman (Civil) awarded by National Council for Vocational Training (for Draftsman) (or) (iii) A Certificate in Army Trade Draftsman (field) issued by Madras Engineering Group
27	Field Surveyor		(i) A Diploma in Civil Engineering from any Institute approved by All India Council for Technical Education (or) (ii) National Trade Certificate (NTC) in the trade of Surveyor awarded by National Council for Vocational Training (for Surveyor) (or) (iii) A Certificate in Army Trade Surveyor (field) issued by Madras Engineering Group Other things being equal, preference shall be given to (a) Candidates with Industrial Training Institute qualification in survey; (b) Demobilized person from any of the defense services

28	Surveyor-cum-Assistant Draughtsman	3234	(i) A pass in the Draughtsmanship (Civil) course under the revised syllabus introduced from July 1952, conducted by the Government of India, Ministry of Labour; or (ii) A certificate in Army Trade Draughtsman (Field) issued by the President, Technical Testing Board, Madras Engineering Group and Centre; or (iii) A certificate in Draughtsman (Civil) issued by the Craftsman Training Centre; or (iv) The National Trade Certificate (NTC) of Draftsman (Civil) Trade or Surveyor Trade awarded by the National Council for Training in Vocational Trades, Government of India through Industrial Training Institute and completion of successful training in apprenticeship under the Apprentices Act 1961; or (v) Must possess a Diploma in Civil Engineering
29	Technical Assistant	3381	Should possess the Diploma in Printing Technology awarded by the Technical Education Department of the Government of Tamil Nadu

4.3.1. The candidates should possess the educational qualification, technical qualification and experience prescribed for the post, as on the date of notification.

4.3.2. The posts for which prescribed qualification is Diploma in a particular subject, then a degree in the subject will be considered as a higher qualification. The candidates possessing degree in the subject are also eligible to apply, except for the post of Assistant Agricultural Officer (Post Code: 3101).

4.3.3. Candidates who have not possessed the two years Diploma in Agriculture are not eligible for the post of Assistant Agricultural Officer (Post Code: 3101) even though they possess higher qualification. Diploma in Agricultural Technology (3 Years course) is not the prescribed educational qualification, for the post of Assistant Agricultural Officer (Post Code: 3101).

4.3.4. Candidates who have not possessed Industrial Training Institute Certificate in the Trade of Welder (Gas and Electric) with National Trade Certificate are not eligible for the post of Technician (Welding) (Post Code: 3332), even though they possess higher qualification.

4.3.5. Supporting Documents:

4.3.5.1. SSLC / HSC / Diploma / ITI Certificate / Degree / PG Degree / Integrated PG Degree / Provisional Degree or Provisional Diploma Certificate / Consolidated Mark Sheet along with Degree or Provisional Degree Certificate shall be accepted as proof of educational qualification.

4.3.5.2. In cases where the Diploma / Degree / PG Degree certificates had been issued after the date of notification, candidates must upload/produce proof (in the form of Provisional Diploma / Degree Certificate / Consolidated Mark Sheet) of the publication of results of the respective qualification(s) on or before the date of notification.

4.3.5.3. The Diploma / Under Graduate degree qualification prescribed for the above posts should have been obtained by passing the required qualification in the following order of studies viz., SSLC + HSC/Diploma/ Industrial Training Institute Certificate or its equivalent + Under Graduate Degree.

4.3.5.4. Candidates claiming possession of qualification higher than that prescribed for a post, must upload / produce certificates, issued on / before the date of notification, in support of such claim.

4.3.5.5. Candidates claiming experience, should upload the experience certificate in the format available

in Annexure-V of this notification.

4.3.5.6. In cases where the duration of the prescribed educational / technical course / experience has been specified in the notification, any discrepancy between the claim in the application and the documents uploaded / produced, shall result in the rejection of candidature after due process.

4.3.5.7. In case the Degree Certificate is lost or is not immediately available for reasons to be specified, an extract from the Convocation Register will be accepted as evidence of qualification.

4.3.6. Equivalence of Qualification: The Government orders relating to equivalence of qualification are available on the Tamil Nadu Public Service Commission's website. However, if the candidate possesses an equivalence of qualification other than one mentioned in the Commission's website and if Government Orders to this effect have been issued on or before the date of this notification, candidates should furnish the details of the same while applying and should upload a copy of the Government Order at the time of uploading of documents, failing which his / her candidature will be rejected after due process. The Government orders regarding equivalence of qualification issued after the date of this notification will not be considered for this recruitment.

4.4. Medical and Physical Standards:

4.4.1. Candidates selected for appointment to the posts will be required to submit a certificate of physical fitness to the Appointing Authority at the time of joining the post.

4.4.2. The prescribed standards of visual acuity of the candidates selected for the following posts are mentioned below;

S.No.	Name of the Post	Post Code	Standard of Vision
1	Assistant Tester	1908	Standard III or Better
2	Assistant Training Officer (Stenography-English)	1733	
3	Planning Assistant Grade B	3484	
4	Hostel Superintendent cum Physical Training Officer	1731	
5	Junior Draughting Officer	3382	
6	Special Overseer	3376	
7	Surveyor	3378	
8	Technical Assistant	3380	
9	Technical Assistant	3379	
10	Executive (Lab)	3290	
11	Technician (Auto Mechanic)	3325	
12	Technician (Boiler)	3326	
13	Technician (Electrical)	3327	
14	Technician (Lab)	3328	
15	Technician (Operation)	3329	
16	Technician (Refrigeration)	3330	
17	Technician (Tyre)	3331	
18	Technician (Welding)	3332	
19	Draftsman	Refer Table in Para No.3	
20	Field Surveyor		
21	Surveyor-cum-Assistant Draughtsman	3234	
22	Technical Assistant	3381	
23	Draughtsman, Grade-III	2114	
24	Motor Vehicle Inspector, Grade II	2119	Standard III with normal colour vision.
25	Junior Draughting Officer	3120	Standard III or Better.
26	Junior Draughting Officer	3115	Colour Blindness and

27	Junior Technical Assistant	3375	Night Blindness will be a disqualification.
28	Supervisor (Weaving)	3377	
29	Assistant Agricultural Officer	3101	Standard III or Better. Colour Blindness will be a disqualification.

4.4.3. Candidates with defective vision should produce an Eye Fitness certificate from a qualified Eye Specialist working in a Government Hospital at the time of joining the post, to the appointing authority.

4.5. Knowledge in Tamil:

4.5.1. Candidates should possess adequate knowledge in Tamil on the date of this Notification. The candidate shall be deemed to possess an adequate knowledge of Tamil if, he/she has passed the SSLC examination or its equivalent examination / HSC / Degree, etc., with Tamil as one of the languages or studied the High School Course in Tamil medium; or passed the SSLC examination or its equivalent examination in Tamil medium; or passed the Second Class Language Test (Full Test) in Tamil conducted by the Tamil Nadu Public Service Commission.

4.5.2. Candidates must upload/ produce either SSLC / HSC / Degree / PG Degree mark sheets or proof of having passed the Second Class Language Test (Full Test) in Tamil conducted by the Tamil Nadu Public Service Commission, at the time of submission of online application.

4.5.3. Failure to produce documents in support of the possession of adequate knowledge of Tamil, shall result in the candidate being required to pass the Second Class Language Test (Full Test) in Tamil conducted by the Commission, within a period of two years from the date of his / her appointment, failing which he / she shall be discharged from service.

4.6. Restrictions on applying for the Examination:

4.6.1. The candidates not belonging to SCs, SC(A)s, STs, MBCs/DCs, BC(OBCM)s, and BCMs, who have put in 5 years or more of service, since his/ her first appointment to a service of Government of India or Government of a State / Union Territory, are not eligible to apply even if they are within the age limit.

4.6.2. The Persons with Benchmark Disabilities are not identified for the posts of Assistant Tester (Post Code:1908), Assistant Training Officer (Stenography-English) (Post Code:1733) and Motor Vehicle Inspector, Grade-II (Post Code:2119).

4.6.3. The candidates with Visual Impairment are not eligible for the post of Hostel Superintendent cum Physical Training Officer (Post Code:1731).

4.6.4. Persons professing Hindu religion alone are eligible for the posts of Junior Draughting Officer (Post Code:3382) in the Hindu Religious and Charitable Endowments Department. Candidates applying for this post should produce / upload a Community Certificate / Certificate from the Revenue Authorities concerned, in support of the religion claimed in the online application. Failure to upload / produce such a certificate shall result in the rejection of candidature after due process.

4.7. Posts identified suitable for Persons with Benchmark Disability:

4.7.1. The following posts are identified as suitable for reservation to Persons with Benchmark Disability as detailed below:

Name of the Post	Post Code	Suitable Category of Benchmark Disabilities
All posts (Except Assistant Tester, Assistant Training Officer (Stenography-English), Motor Vehicle Inspector, Grade-II, Planning Assistant Grade-B, Draughtsman Grade-III and Hostel Superintendent cum Physical Training Officer)	-	All categories of Benchmark Disabilities
Planning Assistant, Grade-B	3484	LV, HH, LD (OA,OL), LC, DF, AC
Draughtsman Grade-III	2114	OA, OL, HH, BL
Hostel Superintendent cum Physical Training Officer	1731	All categories are eligible except candidates with visual impairment
Abbreviations: LV – Low Vision HH – Hard of Hearing LD – Locomotor Disability LC – Leprosy Cured DF – Dwarfism	AC – Acid Attack Victims OA – One Arm OL – One Leg BL – Both Legs	

4.7.2. Persons with Benchmark Disability with only those category (ies) of disability (ies) mentioned above shall be eligible to apply for the Examination under Persons with Benchmark Disability category. Therefore, candidates concerned are advised to read it carefully before applying appropriately for admission to the Examination.

5. Plan of Examination:

5.1. The Combined Technical Services Examination (Diploma / ITI level) will be conducted as single stage Written Examination. The candidates will be admitted to the examination, based on the claims made in the online application.

5.2. Onscreen certificate verification will be conducted before admission to the physical certificate verification and counselling. The Commission will draw a list of candidates to be qualified for the onscreen certificate verification based on the criterion of minimum qualifying marks as mentioned in para 6 of the notification and rule of reservation of appointments. For the posts not requiring experience the candidates will be admitted to onscreen certificate verification in the ratio of 1:3 / 1:2 for General category and all reserved categories respectively. For the posts requiring experience, the candidates will be admitted to onscreen certificate verification in the ratio of 1:5 for all categories. The experience certificate uploaded by the candidates will be verified by the Head of the Department / Organization concerned, during onscreen certificate verification.

5.3. After onscreen certificate verification, based on the marks obtained in the written examination and subject to the rule of reservation of appointments, candidates will be admitted to physical certificate verification and counselling (wherever applicable). For the posts requiring counselling, the candidates will be admitted to physical certificate verification and counselling in the ratio of 1:3 and 1:1.5 for General category and all reserved categories respectively. For the posts not requiring counselling, candidates will be admitted to physical certificate verification in the ratio of 1:1.2 for all categories.

5.4. Marks obtained by the candidates in the Examination (Part B of Paper I and Paper II) would determine final ranking. The final selection will be made based on the total marks obtained by the candidate in the

Examination (Part B of Paper I and Paper II) subject to rule of reservation of appointments. Candidates will be allowed to participate in counselling (wherever applicable) based on his/her rank.

5.5. Appearance in Paper I and Paper II is compulsory. Candidates who have not appeared either for Paper I or Paper II shall not be considered for selection, even if they secure the minimum qualifying marks.

6. Scheme of Examination:

6.1. For all the posts except Assistant Training Officer (Stenography-English):

Subject	Standard	No. of Questions	Duration	Maximum Marks	Minimum Qualifying Marks		Type of Examination	Mode of Examination
					SCs, SC(A)s, STs, MBCs/DCs, BC(OBCM)s and BCMs	Others*		
Paper I	SSLC	100	3 hours	150	60	60	Objective	OMR
Part A Tamil Eligibility Test								
Part B (i) General Studies		75		150	135	180		
(ii) Aptitude and Mental Ability Test		25						
Paper II Subject Paper	Diploma / ITI	200	3 hours	300				CBT
Total (Part B of Paper-I and Paper-II)				450				
*Others - Candidates not belonging to SCs, SC(A)s, STs, MBCs/DCs, BC(OBCM)s and BCMs								
OMR - Optical Mark Recognition; CBT - Computer Based Test								

6.1.1. Subject Paper – Paper II

Name of the Post	Post Code	Subject Paper	Subject Code	Standard	Language of Question Paper
Assistant Tester	1908	Electrical Engineering / Electrical and Electronics Engineering	336	Diploma	English and Tamil
Assistant Training Officer (Stenography-English)	1733	Stenography	378	Diploma	English
Planning Assistant, Grade-B	3484	Civil Engineering	299	Diploma	English and Tamil
		Architecture	323	Diploma	English
Motor Vehicle Inspector, Grade-II	2119	Automobile and Mechanical Engineering *	310	Diploma	English
Draughtsman, Grade-III	2114	Civil Engineering	299	Diploma	English and Tamil

		Architecture	323	Diploma	English
		Town and Country Planning	325	Post Diploma	English
Hostel Superintendent cum Physical Training Officer	1731	Physical Education	354	Diploma	English and Tamil
Junior Draughting Officer	3120	Civil Engineering	299	Diploma	English and Tamil
		Architecture	323		English
Junior Draughting Officer	3115	Civil Engineering	299	Diploma	English and Tamil
Junior Draughting Officer	3382				
Special Overseer	3376				
Technical Assistant	3379				
Technical Assistant	3380				
Junior Technical Assistant	3375	Handloom Technology / Textile Technology / Textile Manufacture	339	Diploma	English
Supervisor (Weaving)	3377				
Surveyor	3378	Civil Engineering	299	Diploma	English and Tamil
		Trade - Surveyor	387	ITI	English and Tamil
Assistant Agricultural Officer	3101	Agriculture	431	Diploma	English and Tamil
Executive (Lab)	3290	Trade - Lab Technician	450	Diploma	English
Technician (Auto Mechanic)	3325	Trade - Fitter	436	ITI	English and Tamil
		Trade - Mechanic Motor Vehicle	437		
		Automobile and Mechanical Engineering *	310	Diploma	English
Technician (Boiler)	3326	Trade - Boiler Attendant	451	Certificate Course	English and Tamil
Technician (Electrical)	3327	Trade - Electrician	438	ITI	English and Tamil
		Electrical Engineering / Electrical and Electronics Engineering	336	Diploma	English and Tamil
Technician (Lab)	3328	Trade - Lab Technician	450	Diploma	English
Technician (Operation)	3329	Trade - Electrician	438	ITI	English and Tamil
		Trade - Fitter	436		
		Trade - Mechanic Motor Vehicle	437		
		Trade - Instrument Mechanic	439		
		Trade - Mechanic Refrigeration and Air-Conditioner	435		
		Mechanical Engineering	255	Diploma	English
		Electrical Engineering / Electrical and Electronics Engineering	336	Diploma	English and Tamil
		Instrumentation Engineering	448	Diploma	English

Technician (Refrigeration)	3330	Trade - Mechanic Refrigeration and Air Conditioner	435	ITI	English and Tamil
		Mechanical Engineering	255	Diploma	English
Technician (Tyre)	3331	Trade - Fitter	436	ITI	English and Tamil
		Automobile and Mechanical Engineering *	310	Diploma	English
Technician (Welding)	3332	Trade – Welder (Gas and Electric)	440	ITI	English and Tamil
Draftsman	Refer Table in Para No. 3	Civil Engineering	299	Diploma	English and Tamil
		Trade - Draughtsman (Civil)	388	ITI	English and Tamil
Field Surveyor		Civil Engineering	299	Diploma	English and Tamil
		Trade - Surveyor	387	ITI	English and Tamil
Surveyor-cum-Assistant Draughtsman	3234	Trade - Surveyor	387	ITI	English and Tamil
		Trade - Draughtsman (Civil)	388		
		Civil Engineering	299	Diploma	English and Tamil
Technical Assistant	3381	Printing Technology	248	Diploma	English

* Single Paper – Automobile Engineering (50% of Questions) and Mechanical Engineering (50% of Questions)

6.2. For the post of Assistant Training Officer (Stenography-English):

Subject	Standard	No. of Questions	Duration	Maximum Marks	Minimum Qualifying Marks		Type of Examination	Mode of Examination
					SCs, SC(A)s, STs, MBCs/DCs, BC(OBCM)s and BCMs	Others*		
Paper I	SSLC	100	3 hours	150	60	60	Objective	OMR
Part A Tamil Eligibility Test								
Part B (i) General Studies								
(ii) Aptitude and Mental Ability Test		25		150	90	120		
Paper II Stenography	Diploma	100	1 1/2 hours	150				CBT
Total (Part B of Paper-I and Paper-II)				300				

*Others - Candidates not belonging to SCs, SC(A)s, STs, MBCs/DCs, BC(OBCM)s and BCMs

OMR - Optical Mark Recognition; CBT - Computer Based Test

6.3. The Paper II and Part B of Paper-I will be evaluated only if the candidate secures minimum qualifying marks of 40% (i.e., 60 Marks) in Part A of Paper I and marks secured in Part A of Paper I will not be taken into account for ranking.

6.4. The questions in Part B of Paper I will be set both in English and Tamil.

6.5. The differently abled candidates can avail exemption from writing Part A in Paper I (Tamil Eligibility Test). Such candidates have to furnish the required details in the online application without fail. Subsequent claim will receive no attention. The candidates need to upload the Certificate in the format prescribed in the para 5 of Annexure IV of this notification.

6.6. The syllabus for the written examination is available in Annexure III of this Notification.

6.7. The instructions to be followed while appearing for the examination, are available in Annexure IV of this Notification.

6.8. The Notification is published in English and Tamil versions. In case of doubt, English version is final.

7. Reservation of Appointments:

7.1. The rule of reservation of appointments applies to this recruitment. The details of the reservation to candidates belonging to various categories are given in Annexure II of this Notification.

8. Communication to Candidates:

8.1. The memorandum of admission (Hall Ticket) for eligible candidates will be made available on the Commission's website www.tnpscexams.in / www.tnpsc.gov.in for downloading by candidates. The memorandum of admission will not be sent by post. The candidates must comply with every instruction given in the memorandum of admission.

8.2. The Commission will publish the written examination results, date and time of physical certificate verification, and counselling on the Commission's Website. No individual communication will be sent to the candidates by Post. Candidates will be informed of the above fact only through SMS and e-mail, through the registered Mobile Number and email ID. Candidates are directed to watch the Commission's website in this regard. The Commission shall not be responsible if the communication does not reach the candidate due to an incorrect / invalid e-mail ID /mobile number and failure / delay in delivery of SMS / email to the candidates due to any reason including technical issues. Any representation from the candidates for non-receipt of SMS or e-mail will not be responded.

9. Communication with the Commission:

9.1. Candidates requiring clarification, can contact the office of the Tamil Nadu Public Service Commission in person or over the Toll-Free No.18004190958 on all working days between 10.00 a.m. and 5.45 p.m.

9.2. Queries relating to One Time Registration / online application may be sent to helpdesk@tnpscexams.in. Any other communication with the Commission must be made through email to grievance.tnpsc@tn.gov.in. Communications sent by post must be addressed only to the Secretary, Tamil Nadu Public Service Commission, TNPSC Road, V.O.C. Nagar, Park Town, Chennai -600 003.

9.3. All communications to the Commission should invariably contain the following particulars. Communications not containing the following particulars will not be attended to.

- a. Name and Year of the examination
- b. Registration No.
- c. Name of the Candidate (in full and in block letters)
- d. Complete postal address as given in the application
- e. Valid and Active E-mail ID

9.4. Request for exemption from age limit or other qualifications will receive no attention. Requests for furnishing causes of failure in the written examination or for non-selection based on the results of the written examination or for revaluation of answer sheets will not be entertained.

9.5. Requests from candidates for furnishing of their marks or answer paper copy before the completion of the entire selection process, will not be entertained by the Commission.

10. Litigations:

The selection for appointment to the posts included in this recruitment is purely provisional subject to the final orders in the court cases, if any, pending before the Hon'ble High Court of Madras and Madurai Bench of Madras High Court, relating to this recruitment.

Secretary

Annexure I

How to Apply Online

1. Website: Candidates should apply only through online mode in the Commission's website viz., www.tnpscexams.in

2. One Time Registration:

2.1. It is essential for the candidate to register himself / herself first at the One Time Registration (OTR) platform, available on the Commission's website, and then proceed to fill up the online application for the examination. Candidates should register only once in the One Time Registration by paying Rs.150/- as registration fee. Successfully registered One Time Registration is valid for five years from the date of registration.

2.2. During One Time Registration, the candidates should keep ready the scanned image of their photograph, taken within the last 3 months of size 20 KB – 50 KB and saved as "Photograph.jpg" and signature of size 10 KB – 20 KB and saved as 'Signature.jpg'. Both photograph and signature, of 200 DPI resolution, should be saved in a CD / DVD / Pen drive, to upload the same.

2.3. One Time Registration is not an application for any post. It is just a collection of information from the candidates and provides a separate dashboard to each candidate to facilitate the maintenance of their own profile. A candidate should make an online application separately for every examination for which he / she intends to appear.

2.4. A valid e-mail ID and mobile number are mandatory for One Time Registration. E-mail ID and mobile number are to be kept in 'ACTIVE' mode. Every candidate should have his / her email ID and password. No candidate should share his/her e-mail ID, password, mobile number with any other person. In case a candidate does not have a valid personal email ID, he / she should create a new email ID before applying online and must maintain that email account live. Inquiries relating to One Time Registration / online applications will be answered only if the inquiries are received through a registered e-mail ID.

2.5. Linking the Aadhaar number with One Time Registration (OTR) is mandatory for candidates. The information associated with the Aadhaar number including biometrics will be used only for identification purposes and will not be stored or shared. Candidates are requested to give their consent in their respective OTR. The Aadhaar details will be submitted to the Central Identities Data Repository (CIDR) only for authentication. Linking of the Aadhaar number is mandatory for all prospective candidates to create new OTR, renew / access the existing OTR and apply for any recruitment to be notified henceforth.

2.6. Details to be furnished during One Time Registration:

2.6.1. Candidates shall furnish their correct SSLC Register Number and Certificate Number, Month and Year of Passing, Medium of Instruction, and Name of the Board that issued the certificate while registering online. If any detail furnished is found to be wrong, the online application will be rejected at any stage after due process.

2.6.2. Candidates who have more than one SSLC mark sheet, should enter the details available in the mark sheet issued on the final attempt in which he / she had passed the SSLC examination.

2.6.3. Besides details related to SSLC, all other details required in the One Time Registration, shall be furnished without any mistake, as these details shall form the basis of all other details given subsequently by the candidate while filling the online application for each recruitment.

2.7. One-Time Registration (OTR) Edit:

2.7.1. The candidates shall be permitted to edit the details in the OTR whenever required by uploading the supporting documents.

2.7.2. Any changes in the One Time Registration must be made before the submission of the online application since the details furnished in the One Time Registration will be filled in automatically in the online application. Hence, incorrect particulars furnished in the One Time Registration may result in the rejection of online application after due process. Candidates are therefore advised to fill in the One Time Registration particulars carefully and correctly.

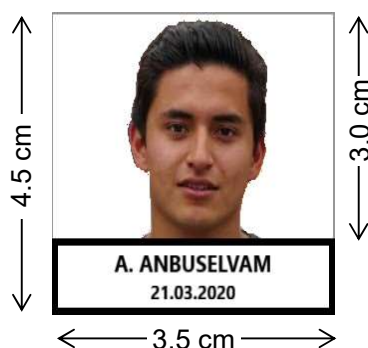
2.7.3. The Commission will not be responsible for any consequences arising out of failure on the part of the candidates to adhere to the instructions issued regarding One Time Registration or filling up of online application.

2.7.4. The instructions and illustration regarding One Time Registration are available on the website viz., www.tnpscexams.in.

3. Online Application:

3.1. A candidate who wishes to apply for any post shall click “APPLY” against the post notified on the Commission’s website and use the same User ID and Password given for One Time Registration. User ID and Password are to be created by the candidates themselves. In case the candidate forgets the User ID and Password, he/she can retrieve or reset them using the “FORGOT PASSWORD and FORGOT USER ID” options. The Commission will not furnish User ID and Password details to the candidates.

3.2. A candidate already having user ID and password, has to login. The available One Time Registration particulars will be displayed on the screen, including the photograph furnished at the time of One Time Registration, as well as the photographs uploaded with previous online applications. Candidates shall check and confirm the One Time Registration details before proceeding further. Thereafter, the candidates shall fill up additional details required in the specific recruitment application. If any of the One Time Registration details are found to be incorrect, the same should be corrected by clicking on OTR Edit. Changes made in the One Time Registration will be reflected only in online applications to be submitted subsequently.



3.3. Candidates shall upload their photograph taken on or after the date of notification at the time of submission of each and every online application. The photograph should be in colour, of passport size, against a white background and taken in a photo studio. The candidate should be photographed in frontal view showing both ears and part of the neck. The candidate should ensure that the name of the candidate and the date of photography (i.e., on or after the date of notification) are printed at the bottom of the photograph. The face of the candidate as well as his / her name and date of photography should be clearly visible in the photograph of height 4.5 cm (170 pixels) and width 3.5 cm (130 pixels). Of the total height of

the photograph, the image of the candidate shall be 3.0 cm (115 pixels) and the candidate's name and date of photography shall be 1.5 cm (55 pixels), as illustrated above. The photograph should be saved in a digital format (in CD / DVD / pen drive / hard drive), ready for uploading.

3.4. If the photograph is not available in a digital format, a passport-size photograph showing the image of the candidate along with the name of the candidate and the date of photography printed at the bottom, in the same dimensions as specified above, may be pasted on a plain white paper and scanned to obtain a resolution of 200 DPI. The image should then be cropped to show only the photograph of size 20 KB–50KB saved as “Photograph.jpg” and uploaded. The entire sheet of white paper on which the photograph is pasted should not be scanned / uploaded. Photographs taken using cellular phones, selfies, photocopies (Xerox) of photographs, photographs taken during family functions, at tourist places, or against a backdrop of plants or buildings should not be uploaded. Photographs of nature, wildlife, buildings, etc. shall not be uploaded. In case of uploading an inappropriate photograph, in violation of the aforementioned instruction, the application is liable to be rejected after due process.

3.5. Before uploading of signature, the candidate shall draw a box of dimension 6.0 x 2.0 cm (230 pixels x 75 pixels) on white paper and sign within the box, using a blue or black ink pen. The paper should then be scanned to obtain a resolution of 200 DPI. The image should then be cropped to show only the box with the signature, of size 10 KB –20KB, and saved as “Signature.jpg” and uploaded.

3.6. Clear images of the photograph and the signature should be uploaded in the correct dimensions, size, and format. Failure to upload/upload clear images of the photograph and signature will result in the rejection of the online application after due process.

3.7. Examination Centres:

3.7.1. While applying online, candidates shall be permitted to choose two district centres as their preference for the Written Examination. Candidates shall be allotted a venue in one of these two district centres. However, candidates with benchmark disability, shall be permitted to choose only one district centre and shall be allotted a venue in that district centre.

3.7.2. Candidates must appear for the examination at the venue they have been allotted, as mentioned in the memorandum of admission (hall ticket). Request for change of examination centre will not be permitted.

3.7.3. The Commission reserves the right to increase or decrease the number of examination centres and to re-allot the candidates accordingly. The Commission also reserves the right to allot a candidate to the nearby centre, if he / she could not be accommodated in the centres opted by the candidate.

3.7.4. The written examination will be held at the centres given below:

S.No.	Name of the Centre	Code	S.No.	Name of the Centre	Code
1.	Ariyalur	3001	21.	Ranipet	3501
2.	Chengalpattu	3301	22.	Salem	1701
3.	Chennai	0101	23.	Karaikudi	1805
4.	Coimbatore	0201	24.	Tenkasi	3601
5.	Chidambaram	0303	25.	Thanjavur	1901
6.	Dharmapuri	0401	26.	The Nilgiris	1301
7.	Dindigul	0501	27.	Theni	2001
8.	Erode	0601	28.	Thiruvallur	2101
9.	Kallakurichi	3401	29.	Thiruvannamalai	2201
10.	Kancheepuram	0701	30.	Thiruvarur	2301
11.	Nagercoil	0801	31.	Thoothukudi	2401
12.	Karur	0901	32.	Tiruchirappalli	2501

13.	Krishnagiri	3101	33.	Tirunelveli	2601
14.	Madurai	1001	34.	Tirupathur	3701
15.	Mayiladuthurai	3801	35.	Tiruppur	3201
16.	Nagapattinam	1101	36.	Vellore	2701
17.	Namakkal	1201	37.	Villupuram	2801
18.	Perambalur	1401	38.	Virudhunagar	2901
19.	Pudukkottai	1501			
20.	Ramanathapuram	1601			

3.8. Application Preview:

3.8.1. Candidates should carefully fill in the details in the online application at the appropriate places and click on the 'SAVE AND PROCEED' button at the end of each page of the application. Before pressing the 'SAVE AND PROCEED' button, candidates are advised to verify each particular field in the application.

3.8.2. Candidates can edit / add / delete any information while filling the online application. Before finally submitting the application, candidates will be given the option of seeing a preview of their application. As soon as a candidate clicks the button meant for preview, an SMS will be sent to the registered mobile number, informing the availability of such a preview in the registered email ID provided by the candidate.

3.8.3. Once the candidate desires to make modifications based on the preview arrangement as indicated in the paragraph above, he/she may re-open the application and make necessary modifications using the Edit option and make the final submission of the corrected application, before the last date prescribed for submission of the online application. It is the responsibility of the candidate to carefully check the details available in the preview and make suitable corrections, if any, in the application / OTR before final submission. The candidate will be solely responsible for any non-rectification or non-submission of the application.

3.8.4. An individual is considered to have applied for a recruitment, if and only if, he / she finally submits the application, by clicking the 'SUBMIT' button. The mere availability of a preview shall not be tantamount to "having applied" for a particular recruitment.

3.9. Examination Fee:

3.9.1. The examination fee of Rs.100 (Rupees One hundred only) should be paid at the time of submitting the online application for this recruitment, unless exemption of fee is claimed.

3.9.2. Candidates belonging to special categories can avail of exemption from paying examination fees as per eligibility criteria. For further details refer to Annexure II of this Notification.

3.9.3. The total number of free chances availed, will be calculated based on claims made in previous applications. The number of free chances availed by the candidate may be verified by the Commission at any stage of the selection process. In case a candidate makes a false claim for exemption from payment of the application fee by suppressing information regarding his/her previous application(s), his / her candidature shall be rejected after due process and he / she shall be debarred for a period of one year, from appearing for examinations conducted by the Commission.

3.9.4. Candidates are directed to carefully choose the option "Yes" or "No" regarding availing of the fee concession. The choice made, cannot be modified or edited after successful submission of the online application. Candidates are advised in their own interest, to keep an account of the number of times fee concession has been availed, irrespective of the information displayed in the <Application History> of the candidate dashboard.

3.9.5. An application (irrespective of the post applied for) claiming fee concession will operate to exclude one chance from the number of free chances allowed. Candidates who have availed the maximum number of free chances permitted / candidates who do not wish to avail of the fee concession / candidates who are not eligible for fee concession shall choose the option “No” against the query regarding fee concession. Such candidates shall thereafter pay the requisite fee through the prescribed mode of payment.

3.9.6. Failure to pay the prescribed fee in time, along with the online application, will result in the rejection of the application after due process.

3.10. Examination Fee Payment:

3.10.1. After submitting the details in the online application, the candidates can pay the examination fee by online mode through Net Banking / Credit card / Debit card on or before the last date of submission of the online application by choosing the option in the online application. Candidates have to pay the service charges also as applicable.

3.10.2. Offline mode of payment if any received in the form of Demand Draft / Postal Order etc. will not be accepted and the applications forwarded with such modes of payment will be summarily rejected and the same will not be returned or refunded.

3.10.3. To facilitate payment of fees through the online mode, an additional page of the application format will be displayed wherein candidates may follow the instructions and fill in the requisite details to make payment. There is a possibility of online payment failure. Hence, if the online payment fails, candidates can check the status of the earlier transaction. If the earlier transactions have failed, the candidate shall retry paying the fee again by online mode. In case of online payment failure, the amount debited from the candidate's account will be reverted to his/her account. The candidates have been given a provision to check the status of the transaction made. If all the attempts / transactions have failed, candidates have to make the payment again. The Commission is not responsible for online payment failure. It is the responsibility of the candidates to ensure that the transaction made by them is successful.

3.10.4. After submitting the payment information in the online application format, wait for the intimation from the server. Meanwhile, DO NOT press 'Back' or 'Refresh' button to avoid payment failure or double payment.

3.10.5. If the online transaction has been successfully completed, an Application Number / Applicant ID will be generated. Candidates should note the Application Number / ID for future reference in respect of the recruitment applied for.

3.10.6. Tamil Nadu Public Service Commission reserves the right to change the mode of payment at any time.

3.11. Online Application Edit:

3.11.1. The candidates shall be permitted to edit all the details in the online application till the last date stipulated for submission of the online application.

3.11.2. If the candidate desires to change his / her photograph and/or signature in his / her online application, the candidate shall select the edit option in the online application to re-upload them which must be saved finally before submitting the online application.

3.11.3. Some of the information contained in the online application has been brought forward from the candidate's one-time registration. If such information has to be edited in the online application, the

candidate shall select the edit profile option in One Time Registration (OTR) and shall make and save necessary corrections. After doing so, the candidate shall select the edit option in the online application and edit the details as desired. The candidate shall save the changes and submit it finally. The candidate shall take a printout of the same if required.

3.11.4. After editing the online application, if the edited details are not finally saved and submitted by the candidate, the details provided by the candidate in the application submitted before editing shall only be considered. If the candidate has to pay a fee based on the edited details, the candidate shall pay the prescribed examination fee in online. Candidates who have already paid the examination fee are not required to pay.

3.12. Application Correction Window:

3.12.1. After the last date for submission of the online application, the Online Application Correction Window shall open for 3 days as mentioned in Para 1 'Important Instructions' of this Notification. During this period, candidates will be able to edit the details in their online application. After the last date of the Correction Window period, no modification is allowed in the online application.

3.12.2. The applications shall be processed as per the details finally furnished by the candidates. It is the responsibility of the candidates and the Commission has no liability for subsequent rejection of the application consequent to the editing details already submitted in the online application. Request / representation received for modification of claims in the online application, in any mode shall not be entertained.

3.13. Candidates are advised in their own interest to apply online much before the closing date and not to wait till the last date to avoid the possibility of disconnection / inability / failure to log on to the Commission's website on account of heavy load on internet / website.

3.14. The Commission does not assume any responsibility for the candidates not being able to submit their online applications within the last date on account of the aforesaid reasons or for any other reason beyond the control of the Commission.

3.15. Candidates need not send the printout of the online application or any other supporting documents to the Commission by post unless asked for specifically.

3.16. The name of the candidate or the name of his / her father or mother, should be spelt correctly in the application as it appears in the certificates / mark sheets.

3.17. Any discrepancy between the details as given in the online application and the documents submitted shall result in the summary rejection of candidature after due process.

3.18. The Commission will not be responsible for any consequences arising out of furnishing of incorrect and / or incomplete details in the application or omission to provide the required details in the application.

3.19. Upload of Documents:

3.19.1. Candidates should upload the required documents of proof in respect of all the claims made in the application with reference to this notification while applying for this post / these posts. If the required certificates are not uploaded by the candidate, within the stipulated time, his/her candidature will be rejected after due process.

3.19.2. The candidates shall have the option of verifying the uploaded certificates / documents through their OTR. If any of the certificates / documents have wrongly been uploaded or not uploaded or if any

modifications are to be done in the uploading of documents, the candidates shall be permitted to upload / re-upload the documents till two days prior to the date of hosting of hall tickets for that particular examination. (i.e., twelve days prior to the date of examination).

3.19.3. The uploaded credentials shall be mapped with the One Time Registration of the respective candidate along with the Application number and Notification Number (i.e., with reference to the notification for each post), so that they can be used during future submission of application by the same candidates.

3.19.4. The online application of the candidates who have not uploaded the required supporting documents (correctly / clearly / legibly) on or before the stipulated period shall be rejected after due process.

3.19.5. The documents uploaded by the candidates shall be linked with OTR and retained in the server for a maximum period of two years. If the candidate applies subsequently for other posts within two years, the documents that were already uploaded shall be displayed to the candidate during the online application process for confirmation and the same need not once again be uploaded by the candidates. If the candidate applies to other posts after the period of retention i.e. two years, the candidate shall be instructed to upload all the documents afresh.

4. Information regarding criminal cases / disciplinary cases:

4.1. Candidates who have declared pending criminal or disciplinary cases in their online application, must upload / produce a copy of the First Information Report (FIR) or memorandum of charges / show cause notice, as the case may be. Failure to upload / produce such papers at the time of submission of online application, shall result in rejection of candidature after due process.

4.2. Candidates who have declared conviction in criminal cases or punishment in disciplinary cases, in their online application, must upload / produce the relevant court orders and / or release orders or memorandum of proceedings, as the case may be, at the time of submission of online application. Failure to upload / produce such papers shall result in the rejection of candidature after due process.

4.3. In case any criminal case is filed / disciplinary action is taken against or conviction / punishment is imposed on a candidate after submission of the online application, at any stage of the recruitment process before the completion of the entire selection process, such candidates should report this fact to the Commission in the next immediate stage when Commission calls for uploading / producing documents. Failure to comply with these instructions shall result in the rejection of candidature after due process and debarment for a period of one year.

4.4. The pendency of disciplinary cases / criminal cases shall in no way affect the selection prospects of candidates. However, failure to inform such pendency, shall result in the rejection of candidature after due process.

5. Employment Details:

5.1. Candidates who are in the service of the Indian Union or a State in India or in the employment of Local Bodies or Universities or Quasi Government Organizations or Public Sector Units constituted under the authority of the Government of India or of a State in India, in regular service, must inform the Commission of such fact, at the time of applying. Suppression of the fact of employment by candidates shall result in rejection of candidature after due process.

5.2. Candidates need not send their applications through their Head of Department or employer. Instead, they may directly apply to the Commission after duly informing their employer in writing that they are applying for the particular recruitment, subject to the condition that they should produce 'No Objection Certificate' in the format prescribed as shown below.

No Objection Certificate

This is to certify that Thiru/Tmt/Selvi(Name) employed as (designation) in this office from (specific the date from which appointed), who is regularly / temporarily appointed and a probationer / approved probationer / full member, had applied for the post of In Service called by the Tamil Nadu Public Service Commission through online application form to the Tamil Nadu Public Service Commission and informed the fact to this department / organization. This department / organization has 'No Objection' for processing the said application of the individual by the Tamil Nadu Public Service Commission, subject to the condition that the particulars furnished by the individual are found to be correct.

Appointing Authority
(Signature with Seal)

* In the case of a Government servant against whom departmental or criminal proceedings are contemplated or pending, the appointing authority shall inform the said fact to the Tamil Nadu Public Service Commission along with the "No Objection Certificate" and shall also inform the Tamil Nadu Public Service Commission about the initiation of departmental or criminal proceedings, if any, subsequently, till the date of his / her actual relief from the office to take up appointment in the post for which he / she has been selected.

5.3 Candidates who secure employment after submission of online application, must upload / produce a 'No Objection Certificate' or at least an undertaking regarding the fact of employment and that 'No Objection Certificate' has been applied for. Failure to upload / produce the 'No Objection Certificate' / an undertaking shall result in the rejection of candidature after due process.

5.4. Candidates who have been removed / dismissed / resigned from a post, shall intimate such fact to the Commission, through the One Time Registration Dashboard. Any failure in this regard shall result in the rejection of the candidature after due process.

5.5. Any change in the employment status of the candidate, whether appointment to or resignation / removal / dismissal, from a post, at any stage of the recruitment process, until completion of the entire selection process, must be informed to the Commission. Any failure in this regard shall result in the rejection of the candidature after due process.

5.6. Failure on the part of employed candidates to upload / produce the 'No Objection Certificate' shall result in the rejection of candidature after due process.

Annexure II

1. Ex-Servicemen:

1.1. 'Ex-serviceman' means,

1.1.1. any person who had served in any rank (whether as combatant or not) in the Armed Forces of the Union for a continuous period of not less than six months after attestation, if released between 1st July 1979 and 30th June 1987 (both days inclusive):

- a. for reasons other than at his own request or by way of dismissal or discharge on account of misconduct or inefficiency; or
- b. at his own request after serving for a period of not less than five years; or

1.1.2. Any person who had served in any rank (whether as combatant or not) in the Armed Forces of the Union, and had retired or had been released on or after 1st July 1987 from such service:

- a. at his own request after earning his pension; or
- b. on medical grounds attributable to military service or circumstances beyond his control and awarded medical or other disability pension; or
- c. otherwise than at his own request after earning his pension, as a result of reduction in establishment; or
- d. after completing specific period of engagement, otherwise than at his own request or by way of dismissal or discharge on account of misconduct or inefficiency and has been given a gratuity.

1.1.3. any person of the Territorial Army of the following categories, namely, pension holder for continuous embodied service, person with disability attributable to military service and gallantry award winner retired on or after 15th November 1986; or

1.1.4. any person of the Army Postal Service, who retired on or after 19th July 1989 directly from the said service without reversion to Postal and Telegraph Department with pension or who has been released on or after 19th July 1989 from such service on medical grounds attributable to military service or circumstances beyond his control and awarded medical or other disability pension; or

1.1.5. Any person who was on deputation in the Army Postal Service for more than 6 months prior to the 14th day of April 1987; or

1.1.6. Any person who was boarded out or released on medical grounds and granted medical or disability pension; or

1.1.7. any person discharged on or after July 1987 under Army Rule 13(3) III (V) for the reason that his service is no longer required and in receipt of pension; or

1.1.8. Such other person as may be notified by the Government from time to time.

1.2. Ex-servicemen does not mean the wards / dependants of those mentioned above.

1.3. A person discharged before July 1987 under Army Rule 13(3) III (V) for the reason that his service is no longer required is not an ex-serviceman.

1.4. In all cases, an ex-serviceman once recruited to a post in any class or service or category, cannot claim the concession of being called an ex-serviceman for his further recruitment.

1.5. Persons serving in the Armed Forces shall be eligible to apply for posts under the Government, if they are due to complete the specified term of their engagement in the Armed Forces, within one year from the last date prescribed by the Commission, for receipt of the online application in respect of a particular recruitment.

1.6. The above mentioned age concession will not apply to the Ex-Servicemen candidates who have already been recruited to any class or service or category.

1.7. Fee Concession: Two free chances.

1.8. Reservation of Appointments: The rule of reservation of appointment to Ex-Servicemen is applicable only for the posts in Level- 9 to 12 in the Pay Matrix in the notification. If no qualified and suitable Ex- Servicemen belonging to a particular category is available for selection for appointment against reserved turn, such turn shall be filled up by a candidate other than Ex-Servicemen belonging to the particulars communal category.

1.9. Supporting Documents:

1.9.1. A candidate who claims to have been demobilised from the Army or Navy or Air Force needs to upload/produce either a properly authenticated extract from his Discharge Certificate (viz., a Bonafide Certificate) issued by the Ex-Servicemen's Welfare Board in the format as depicted below or the Pension Pay Order at the time of submission of online application.

Form of Bonafide Certificate to be produced by Ex-Servicemen

1. Name of the applicant
2. Rank held, Name of the Service (Army / Navy / Air force)
3. Date of enrolment
4. Date of discharge
5. Reasons for discharge
6. Whether an 'Ex-Serviceman' should be specifically stated
7. Whether in receipt of pension
8. P.P.O No.
9. Conduct and character while serving in the defence forces
10. Name of the post applying for
11. Unique Service No.
12. Whether the individual is employed in any post under the Government of Tamil Nadu? If so, Name of the post and date of appointment

1.9.2. Persons serving in the Armed Forces who are due to complete the specified term of their engagement in the Armed Forces, within one year from the last date prescribed by the Commission, for receipt of the online application in respect of this recruitment, shall upload / produce at the time of certificate verification, an undertaking and a certificate from their Commanding Officer in the format as depicted below.

Form of Undertaking to be given by the Serving Personnel

I hereby accept that if selected on the basis of the recruitment / examination to which this application relates, I will produce documentary evidence to the satisfaction of the appointing authority that I have been duly released / retired / discharged from the Armed Forces and I am entitled to the benefits admissible to Ex-Servicemen given under Section 63 of the Tamil Nadu Government Servants (Conditions of Service) Act, 2016.

Place:

Signature of the Applicant

Form of Certificate for Serving Personnel

I hereby certify that according to the information available with me (Number)(Rank)
(Name) is due to complete the specified term of his engagement with the Armed Forces on the (date)
.....

Place:

Signature of the Commanding Officer

Date:

1.9.3. Failure to upload/produce the supporting documents at the time of applying shall result in the rejection of candidature after due process.

2. Persons with Benchmark Disability:

2.1. "Person with Benchmark Disability" means a person with not less than forty percent of a specified disability where specified disability has not been defined in measurable terms and includes a person with disability where specified disability has been defined in measurable terms, as certified by the certifying authority designated by the Government under sub-section (1) of section 57 of the Rights of Persons with Disabilities Act, 2016.

2.2 Fee Concession: Full exemption.

2.3. Reservation of Appointments: (For posts identified suitable for persons with benchmark disabilities)
Out of the total number of appointments to be made in the communal reservation categories, viz., Scheduled Castes / Scheduled Caste - Arunthathiyars (on preferential basis) / Scheduled Tribes / Most Backward Classes / Denotified Communities / Backward Classes (other than Muslim) / Backward Classes (Muslim) and General Turn, in the case of appointment made by direct recruitment, 1% each shall be reserved for persons with benchmark disabilities under categories (a), (b) and (c) and 1% for persons with benchmark disabilities under categories (d) and (e) both taken together, namely:

- a. blindness and low vision;
- b. deaf and hard of hearing;
- c. locomotor disability including cerebral palsy, leprosy cured, dwarfism, acid attack victims and muscular dystrophy;
- d. autism, intellectual disability, specific learning disability and mental illness;
- e. Multiple disabilities from amongst persons under categories (a) to (d) including deaf-blindness in the posts identified for each disability.

2.4. Supporting Documents:

2.4.1. The Persons with Benchmark Disability should produce Disability Certificate at the time of online application in the format shown below, prescribed in the Rights of Persons with Disabilities Rules, 2017 and issued by the competent authority as mentioned below;

Form V Certificate of Disability (In cases of amputation or complete permanent paralysis of limbs or dwarfism and in case of blindness) (Name and Address of the Medical Authority issuing the Certificate)		
		Recent passport size attested photograph (Showing face only) of the person with disability.
Certificate No. _____		Date: _____
<p>This is to certify that I have carefully examined Shri./ Smt./ Kum. _____ son/ wife/ daughter of Shri _____ Date of Birth (DD/ MM/ YY) _____ Age _____ years, male/ female _____ Registration No. _____ permanent resident of House No. _____ Ward/ Village/ Street _____ Post Office _____ District _____ State _____, whose photograph is affixed above, and am satisfied that:</p> <p>(A) he/ she is a case of:</p> <ul style="list-style-type: none">• locomotor disability• dwarfism• blindness <p>(Please tick as applicable)</p> <p>(B) the diagnosis in his/ her case is _____</p> <p>(C) he / she has _____ % (in figure) _____ percent (in words) permanent locomotor disability/ dwarfism/ blindness in relation to his/ her _____ (part of body) as per guidelines (..... number and date of issue of the guidelines to be specified).</p> <p>2. The applicant has submitted the following document as proof of residence:-</p>		
Nature of Document	Date of Issue	Details of authority issuing certificate
Signature/ thumb impression of the person in whose favour certificate of disability is issued.		
(Signature and Seal of Authorised Signatory of notified Medical Authority)		

Form VI
Certificate of Disability
(In cases of multiple disabilities)

(Name and Address of the Medical Authority issuing the Certificate)

Recent passport size
attested photograph
(Showing face only)
of the person with
disability.

Date: _____

Certificate No. _____
This is to certify that we have carefully examined Shri./ Smt./ Kum.
_____ son / wife / daughter of Shri

Date of Birth (DD/ MM/ YY) _____ Age _____ years,
male/ female _____. Registration No. _____ permanent resident of House No. _____
Ward/ Village/ Street _____ Post Office _____ District _____ State _____, whose
photograph is affixed above, and am satisfied that:

(A) he/ she is a case of Multiple Disability. His/ her extent of permanent physical impairment/ disability has been evaluated as per guidelines (..... number and date of issue of the guidelines to be specified) for the disabilities ticked below, and is shown against the relevant disability in the table below:

Sl. No.	Disability	Affected part of body	Diagnosis	Permanent physical impairment/ mental disability (in %)
1.	Locomotor disability	@		
2.	Muscular Dystrophy			
3.	Leprosy cured			
4.	Dwarfism			
5.	Cerebral Palsy			
6.	Acid attack Victim			
7.	Low vision	#		
8.	Blindness	#		
9.	Deaf	£		
10.	Hard of Hearing	£		
11.	Speech and Language disability			
12.	Intellectual Disability			
13.	Specific Learning Disability			
14.	Autism Spectrum Disorder			
15.	Mental illness			
16.	Chronic Neurological Conditions			
17.	Multiple sclerosis			
18.	Parkinson's disease			
19.	Haemophilia			
20.	Thalassemia			
21.	Sickle Cell disease			

(B) In the light of the above, his/ her over all permanent physical impairment as per guidelines (..... number and date of issue of the guidelines to be specified), is as follows : -

In figures :- ----- percent

In words :- ----- percent

2. This condition is progressive/ non-progressive/ likely to improve/ not likely to improve.

3. Reassessment of disability is:

(i) not necessary, or

(ii) is recommended/ after years months, and therefore this certificate shall be valid till --- --- --- (DD) (MM) (YY)

@ e.g. Left/ right/ both arms/ legs

e.g. Single eye

£ e.g. Left/ Right/ both ears

4. The applicant has submitted the following document as proof of residence:-

Nature of document	Date of issue	Details of authority issuing certificate
--------------------	---------------	--

5. Signature and seal of the Medical Authority.

Name and Seal of Member	Name and Seal of Member	Name and Seal of the Chairperson
-------------------------	-------------------------	----------------------------------

Signature / thumb impression of the person in whose favour certificate of disability is issued.

Form VII
Certificate of Disability
(In cases other than those mentioned in Forms V and VI)
(Name and Address of the Medical Authority issuing the Certificate)

Recent passport size
attested photograph
(Showing face only) of
the person with
disability.

Certificate No. _____

Date: _____

This is to certify that I have carefully examined Shri/ Smt/ Kum _____ son/ wife / daughter of
Shri _____ Date of Birth (DD/ MM/ YY) _____ Age _____ years, male/ female _____
Registration No. _____ permanent resident of House No. _____ Ward/ Village/ Street
_____ Post Office _____ District _____ State
_____, whose photograph is affixed above, and am satisfied that he/ she is a case of
_____ disability. His/ her extent of percentage physical impairment/ disability has
been evaluated as per guidelines (..... number and date of issue of the guidelines to be specified) and is
shown against the relevant disability in the table below:-

Sl. No.	Disability	Affected part of body	Diagnosis	Permanent physical impairment/mental disability (in %)
1.	Locomotor disability	@		
2.	Muscular Dystrophy			
3.	Leprosy cured			
4.	Cerebral Palsy			
5.	Acid attack Victim			
6.	Low vision	#		
7.	Deaf	€		
8.	Hard of Hearing	€		
9.	Speech and Language disability			
10.	Intellectual Disability			
11.	Specific Learning Disability			
12.	Autism Spectrum Disorder			
13.	Mental illness			
14.	Chronic Neurological Conditions			
15.	Multiple sclerosis			
16.	Parkinson's disease			
17.	Haemophilia			
18.	Thalassemia			
19.	Sickle Cell disease			

(Please strike out the disabilities which are not applicable)

2. The above condition is progressive/ non-progressive/ likely to improve/ not likely to improve.

3. Reassessment of disability is:

(i) not necessary, or

(ii) is recommended/ after ___ years ___ months, and therefore this certificate shall be valid till (DD/ MM/ YY)

@ - eg. Left/ Right/ both arms/ legs

- eg. Single eye/ both eyes

€ - eg. Left/ Right/ both ears

4.The applicant has submitted the following document as proof of residence:-

Nature of document	Date of issue	Details of authority issuing certificate
--------------------	---------------	--

(Authorised Signatory of notified Medical Authority)
(Name and Seal)

Countersigned
{Countersignature and seal of the
Chief Medical Officer/ Medical Superintendent/
Head of Government Hospital, in case the
Certificate is issued by a medical authority who is
not a Government servant (with seal)}

Signature/ thumb
impression of the
person in whose
favour certificate of
disability is issued.

List of Certifying Authority for the issue of disability certificate

TABLE – I

S. No.	Specified disability	Medical Authority for the purpose of the issue of disability certificate	Certifying authority to issue certificate of disability
1	In case of amputation or complete permanent paralysis of limbs or dwarfism	Hospitals/ Institutions/ Primary Health Centres run by Central and State Government/ Statutory Local bodies	Any doctor/ medical practitioner working in the Hospitals/ Institutions/ Primary Health Centres run by Government/ Statutory Local bodies.
2	Multiple Disability	District Hospital/ Other hospitals/ Institutions run by Central and State Government /Statutory Local Bodies having relevant medical specialist and testing/assessment facilities	Medical Board consisting of three members of whom two will be specialist dealing with relevant disabilities
3	Specified Disabilities not mentioned in Serial numbers 1 & 2 above	Hospitals / Primary Health Centers / Institutions run by Central and State Government/ Statutory Local bodies having relevant medical specialist and testing / assessment facilities	A specialist dealing with the relevant disability as specified in the Table - II given below

TABLE – II

Sl. No.	Category	Specialist
1	Locomotor disability other than amputation or complete permanent paralysis of limbs and dwarfism	Specialist in Physical Medicine and Rehabilitation or Orthopaedician.
2	Muscular Dystrophy	Specialist in Physical Medicine and Rehabilitation or Orthopaedician.
3	Leprosy cured person	Specialist in Physical Medicine and Rehabilitation or Orthopaedician.
4	Cerebral Palsy	Specialist in Physical Medicine and Rehabilitation or Orthopaedician.
5	Acid Attack Victim	Specialist in Physical Medicine and Rehabilitation or Orthopaedician.
6	Blindness	Specialist in the field of Ophthalmology.
7	Low Vision	Specialist in the field of Ophthalmology.
8	Deaf	Specialist in the field of Ear, Nose, Throat (E.N.T).
9	Hard of Hearing	Specialist in the field of Ear, Nose, Throat (E.N.T).
10	Speech and Language Disabilities	Specialist in the field of Ear, Nose, Throat (E.N.T) and Neurologist.
11	Intellectual Disability	Psychiatrist.
12	Specific Learning Disabilities	Medical board consisting of a) Paediatrician; and b) Psychiatrist and Trained Psychologist.
13	Autism spectrum disorder	Medical Board consisting of a) Psychiatrist and Trained psychologist; and b) Paediatrician or General Physician.
14	Mental Illness	Psychiatrist.
15	Chronic Neurological Conditions such as Multiple Sclerosis and Parkinson's Disease	Medical Board consisting of a) Psychiatrist and Trained Psychologist; and b) Neurologist; and c) Orthopaedician or Specialist in Physical Medicine and Rehabilitation.

2.4.2. In case the certificate is issued by a medical authority who is not a Government servant, it shall be valid only if countersigned by the Joint Director, Medical Services.

2.4.3. The disability claimed in the online application, shall be exactly the same as stated in the Disability Certificate. Any discrepancy in this regard shall result in rejection of candidature after due process.

2.4.4. Claim as person with benchmark disability, unsupported by the prescribed documents shall result in rejection of candidature after due process.

3. Destitute Widow:

3.1. "Destitute Widow" means a widow whose total monthly income from all sources shall not be more than Rs.4,000/-(Rupees Four Thousand only), including any family pension or other receipts including income from private practice in the case of professionals. Destitute Widow shall not include a divorcee or a woman deserted by her husband. The status of an individual as Destitute Widow is with reference to the date of notification.

3.2. Fee Concession: Full exemption.

3.3. Reservation of Appointments: The rule of reservation of appointment to Destitute Widow candidates will apply for this recruitment. 10% of vacancies out of 30% of vacancies set apart for Women candidates

in direct recruitment are reserved for Destitute Widows. The reservation of appointment to Destitute Widow is applicable only for the post which does not exceed Level-10 in the pay matrix in this notification. If no qualified and suitable destitute widow is available, then, the turn so set apart for destitute widow shall go to the women / Transgender (Women) (other than destitute widow) belonging to the respective category.

3.4. Supporting Documents:

3.4.1. The Destitute Widows should produce a certificate from the Revenue Divisional Officer or the Assistant Collector or the Sub-Collector concerned, in the format prescribed below. Failure to upload / produce such certificate or uploading / production of a widow or divorcee certificate at the time of online application shall result in rejection of candidature after due process.

Form of Destitute Widow Certificate

1. Name of the individual
2. Full Postal Address
3. Details of job held, if any:
4. Particulars of her children, if any
5. Name and last occupation of her late husband
6. Date of demise of her husband
7. Monetary benefits received after her husband's death by way of family pension, insurance, etc., if any
8. Details of Properties if any immovable and movable left behind by him
9. Present monthly income—
 - a. From salaries/wages
 - b. From family pension
 - c. From private properties
 - d. Rents received
 - e. From private practice
 - f. Other sources, if any
 - g. Total
10. Whether living alone or living with her husband's parents / in-laws / parents / brother(s)
11. Whether she satisfies the definition of the term "Destitute Widow" as defined in section 20(8) and 26 of Tamil Nadu Government Servants (Conditions of Service) Act, 2016.

Certified that I have verified the particulars furnished by the individual and satisfied myself as to the correctness of her claim with reference to the definition of the term – "Destitute Widow" in section 20(8) and 26 of Tamil Nadu Government Servants (Conditions of Service) Act, 2016.

Certificate Reference No.:

Signature:

Place:

Name:

Date:

Designation:

Revenue Divisional Officer / Assistant Collector / Sub-Collector

Explanation - The above certificate should be issued only by the Revenue Divisional Officer or the Assistant Collector or the Sub-Collector concerned.

3.4.2. A 'Widow Certificate' is different from a 'Destitute Widow Certificate'. Candidates who have uploaded / produced Widow Certificates will not be considered as Destitute Widow.

3.4.3. Claim as Destitute Widow shall be admitted only if the date of demise of husband is on or before the date of notification.

3.4.4. Any correction in the Destitute Widow certificate must be attested by the issuing authority or a fresh certificate in lieu thereof must be uploaded / produced.

4. Person Studied in Tamil Medium (PSTM):

4.1. "Person Studied in Tamil medium" means a person who has studied through Tamil medium of instruction up to the educational qualification prescribed for direct recruitment in the rules or regulations or orders applicable to any appointment in the services under the State.

4.1.1. In cases where a Degree is prescribed as the educational qualification, one shall have studied from first standard to Degree through Tamil medium of instruction.

4.1.2. In cases where a Post Graduate Degree is prescribed as the educational qualification, one shall have studied from first standard to Post Graduate Degree through Tamil medium of instruction.

4.2. Supporting Documents:

4.2.1. Candidates claiming to be Persons Studied in Tamil Medium (PSTM) must upload/produce evidence for the same, in the form of SSLC, HSC, Transfer Certificate, Provisional Certificate, Convocation Certificate, Degree Certificate, PG Degree Certificate, Mark Sheets, Certificate from the Board or University or from the Institution, as the case may be, with a recording that he had studied the entire duration of the respective course(s) through Tamil medium of instruction.

4.2.2. Candidates must upload/produce documents as evidence of having studied in the Tamil medium, all educational qualifications from 1st standard up to the educational qualification prescribed.

4.2.3. If no such document as evidence for 'Person Studied in Tamil Medium' is available, a certificate from the Principal / Head Master / District Educational Officer / Chief Educational Officer / District Adi Dravidar Welfare Officer / Registrar / Controller of Examinations / Head / Director of the Educational Institution / Director / Joint Director of Technical Education/ Registrar of Universities as the case may be, in the format as shown below, must be uploaded / produced, for each and every educational qualification, from 1st standard upto the educational qualification prescribed.

4.2.4. Failure to upload/produce such documents as evidence for 'Persons Studied in Tamil Medium' for all educational qualification up to the educational qualification prescribed, at the submission of online application shall result in the rejection of candidature after due process.

4.2.5. Documents uploaded / produced as proof of having studied in Tamil medium, for the partial duration of any course / private appearance at any examination, shall not be accepted and shall result in the rejection of candidature after due process.

Certificate for having studied in Tamil Medium #

This is to certify that Thiru./Tmt./Selvi.(Name) had studied Classes to with **Tamil as the medium of instruction**, during the year toand had satisfactorily completed the course of studies prescribed for Classes to

Thiru./Tmt./Selvi.(Name) was / was not awarded **scholarship meant for students studying in the Tamil medium**.

This certificate is issued with reference to Section 2(d) of the PSTM (Amendment) Act, 2020, based on verifiable documentary evidence. The undersigned assumes full responsibility for the veracity of the contents herein.

Signature of Principal / Head Master /
District Educational Officer /
Chief Educational Officer /
District Adi Dravidar Welfare Officer

Place:

Date:

Seal of the Institution

Mobile No. _____

- If the candidate has studied in different schools from 1st std. up to 10th std./ 12th std., then the above certificate shall be obtained from each of the schools the candidate has studied in.

Certificate for having studied in Tamil Medium@

This is to certify that Thiru./Tmt./Selvi.(Name) had studied..... (Diploma/Degree/PG Degree, etc.) during the year to with **Tamil as the medium of instruction** and had satisfactorily completed the course of studies prescribed for (Diploma / Degree/PG Degree, etc.).

Thiru./Tmt./Selvi.(Name) was / was not awarded **scholarship meant for students studying in the Tamil medium**.

This certificate is issued with reference to Section 2(d) of the PSTM (Amendment) Act, 2020, based on verifiable documentary evidence. The undersigned assumes full responsibility for the veracity of the contents herein.

Signature of Registrar / Principal / Controller of Examinations /
Head / Director of Educational Institution / Director/Joint
Director of Technical Education/ Registrar of Universities

Place:

Date:

Seal of the Institution

Mobile No.

@If the candidate has completed different courses in different Institutions, such a certificate shall be obtained from each of these Institutions for the courses completed therein.

5. Scheduled Castes, Scheduled Caste (Arunthathiyars) and Scheduled Tribes:

5.1. "Scheduled Castes" means the communities given in the Annexure to the "Instructions to Applicants" [extracted from Part-A of Schedule-II of the Tamil Nadu Government Servants (Conditions of Service) Act, 2016].

5.2. 'Arunthathiyar' means the castes: Arunthathiyar, Chakkiliyan, Madari, Madiga, Pagadai, Thoti and Adi Andhra.

5.3. "Scheduled Tribes" means the communities given in the Annexure to the "Instructions to Applicants" [extracted from Part-B of Schedule-II of Tamil Nadu Government Servants (Conditions of Service) Act, 2016].

Note: Persons belonging to Tamil Nadu and to any one of the communities mentioned in the lists shown in the Annexure to the "Instructions to Applicants" alone shall be treated as Scheduled Castes or Scheduled Tribes as the case may be. Persons belonging to other States shall not be treated as belonging to the Scheduled Castes or Scheduled Tribes even though they may belong to any one of the communities specified in the list.

5.4. Fee Concession: Full exemption

5.5. Reservation of Appointments: The selection will be made following the rule of reservation of appointments for Scheduled Castes / Scheduled Caste (Arunthathiyars) / Scheduled Tribes.

Scheduled Caste (SC)	15%
Scheduled Caste (Arunthathiyar) (SCA)	3%
Scheduled Tribe (ST)	1%

5.6. Supporting Documents:

5.6.1. The Scheduled Caste (Arunthathiyars) and Scheduled Castes candidates should produce the Community certificate, citing either father's / mother's name, issued by Taluk Tahsildar, in whose jurisdiction the candidate claims to have permanent residence.

5.6.2. The Scheduled Tribe candidates should produce the Community certificate, citing either father's / mother's name, issued by the Revenue Divisional Officer / Assistant Collector / Sub-Collector / Personal Assistant (General) to the Collector of Chennai / District Adi-Dravidar Welfare Officer, in whose jurisdiction the candidate claims to have permanent residence.

5.6.3. Candidates belonging to Scheduled Tribe communities must upload/produce the report of the State Level Scrutiny Committee (SLSC), if available. Failure to do so would render their claim liable to verification by the State Level Scrutiny Committee.

5.6.4. Uploading / production of a community certificate citing name of the spouse, shall result in rejection of candidature after due process.

5.6.5. The certificate obtained by the candidates in the form other than the one referred to in G.O. Ms. No.781, Revenue Department, dated 2nd May 1988 and solely based on the entries in SSLC or Transfer Certificate or other school / college records will not be accepted.

5.6.6. Candidates are warned that if the community recorded in the certificate produced by them from the competent authority is not included in the list of Scheduled Castes, Scheduled Caste (Arunthathiyars), Scheduled Tribes, given in the Annexure to the "Instructions to Applicants" [extracted from the Tamil Nadu Government Servants (Conditions of Service) Act, 2016], they will not be permitted to claim to belong to

Scheduled Castes, Scheduled Caste (Arunthathiyars), Scheduled Tribes, as the case may be. They will, in that case, be permitted to claim to belong to 'Others' category only.

5.6.7. Candidates belonging to Scheduled Castes, on conversion to religions other than Christianity / Islam, shall be treated as 'Others'. However, Scheduled Caste converts to Sikhism and Buddhism shall be treated as Scheduled Castes.

5.6.8. Failure to upload / produce the supporting documents at the time of online application shall result in the rejection of candidature after due process.

6. Backward Classes:

6.1. "Backward Classes" means the communities specified as Backward Classes, Backward Class Muslims, Most Backward Classes / Denotified Communities given in the Annexure to the "Instructions to Applicants" [extracted from Parts A, B, C and D respectively, of Schedule-I of the Tamil Nadu Government Servants (Conditions of Service) Act, 2016].

6.2. Explanation - Persons who belong to the State of Tamil Nadu alone, who belong to one of the communities specified in Schedule-I, of the Tamil Nadu Government Servants (Conditions of Service) Act, 2016 shall be treated as persons who belong to one of such communities.

6.3. Fee Concession: Three Free Chances

6.4. Reservation of Appointments:

The selection will be made following the rule of reservation of appointments for Backward Classes (Muslim), Backward Classes, Most Backward Classes and Denotified Communities.

Backward Class (BC)	26.5%
Backward Class (Muslim) [BC (M)]	3.5%
Most Backward Class / Denotified Communities (MBC / DC)	20.0%

6.5. Supporting Documents:

6.5.1. The candidates belonging to Backward Classes (Muslim), Backward Classes, Most Backward Classes and Denotified Communities should produce the Community certificate, citing either father's / mother's name, issued by Revenue Officer not lower in rank than a Tahsildar or Head Quarters Deputy Tahsildar or Special Deputy Tahsildar appointed to issue Community Certificate or Deputy Tahsildar (School Certificates) or Executive Deputy Tahsildar (in respect of Chennai district) or Additional Head Quarters Deputy Tahsildar or Zonal Deputy Tahsildar, in whose jurisdiction the candidate claims to have permanent residence.

6.5.2. The candidates belonging to Thottia Naicker (including Rajakambalam, Gollavar, Sillavar, Thockalavar, Thozhuva Naicker, and Erragollar) included in the list of MBC / DC should produce the Community certificate, citing either father's / mother's name, issued by Head Quarters Deputy Tahsildar/ Zonal Deputy Tahsildar, in whose jurisdiction the candidate claims to have permanent residence.

6.5.3. Uploading / production of a community certificate citing name of the spouse, shall result in rejection of candidature after due process.

6.5.4. The certificate obtained by the candidates in the form other than the one referred to in G.O. Ms. No.781, Revenue Department, dated 2nd May 1988 and solely based on the entries in SSLC or Transfer Certificate or other school / college records will not be accepted.

6.5.5. Candidates are warned that if the community recorded in the certificate produced by them from the competent authority is not included in the list of Backward Classes (Muslim), Backward Classes, Most Backward Classes / Denotified Communities, given in the Annexure to "Instructions to Applicants" [extracted from the Tamil Nadu Government Servants (Conditions of Service) Act, 2016], they will not be permitted to claim to belong to Most Backward Classes / Denotified Communities, Backward Classes (other than Muslim) or Backward Classes (Muslim), as the case may be. They will, in that case, be permitted to claim to belong to 'Others' category only.

6.5.6. Candidates belonging to Backward Classes, Most Backward Classes / Denotified Communities on conversion to religions other than Christianity / Islam, shall be treated as 'Others'.

6.5.7. Failure to upload / produce the supporting documents at the time of online application shall result in the rejection of candidature after due process.

7. Women:

7.1. Reservation of Appointments:

A minimum of 30% of all vacancies shall be set apart for women candidates, irrespective of the fact of whether the rule of reservation of appointments applies to the posts or not. In respect of the posts to which the rule of reservation of appointments applies, 30% of vacancies shall be set apart for women candidates, following the reservation for each communal category as well as open category. Women / Transgender (women) candidates shall be entitled to compete for the said 30% of vacancies. They shall also be entitled to compete for the remaining 70% of vacancies along with male / Transgender / Transgender (men) candidates.

7.2. Supporting Documents:

Gender claimed shall be verified against the Transfer Certificate / Community Certificate. Failure to upload/produce the supporting documents at the time of submission of online application shall result in the rejection of candidature after due process.

8. Transgender:

8.1. Supporting Documents:

8.1.1. Transgender / Transgender (Male) / Transgender (Female) candidates should produce the Transgender ID card issued only by the Tamil Nadu Transgender Welfare Board.

8.1.2. Uploading / production of Transgender ID card, issued by any authority other than the Tamil Nadu Transgender Welfare Board shall result in rejection of candidature after due process.

8.1.3. Transgender or Transgender (Male) or Transgender (Female) claim made in the online application must correspond to what is stated in the Transgender ID card. Any discrepancy in this regard shall result in rejection of candidature after due process.

8.1.4. Gender claim unsupported by the requisite documents shall result in rejection of candidature after due process.

8.2. Community:

8.2.1. Transgender candidates, who do not possess any community certificate may choose to be considered under 'Others' or under Most Backward Classes.

8.2.2. Transgender candidates who belong to Scheduled Caste / Scheduled Caste (Arunthathiyar) / Scheduled Tribe communities and possess community certificate as such, shall be considered as per their respective community.

8.2.3. Transgender candidates who belong to communities other than Scheduled Caste / Scheduled Caste (Arunthathiyar) / Scheduled Tribe and possess community certificate as such, are permitted to choose to be considered as belonging to their own community or as Most Backward Class, whichever is advantageous to them, at the time of One Time Registration itself. Once the individual opts to be considered as a particular community, it shall be crystallized and this option shall not be changed in the future.

8.2.4. Transgender candidates who do not possess a community certificate and have chosen to be considered under 'Most Backward Classes' or 'Others' and those in possession of a community certificate as Backward Classes / Backward Classes (Muslim) / Denotified Communities but have chosen to be considered under 'Most Backward Classes', need not upload / produce a community certificate in support of their claim.

8.2.5. Transgender candidates, in possession of a community certificate and who have chosen to be considered under the communal reservation category as stated in the community certificate, must upload / produce the same. Failure to upload / produce such a certificate shall result in rejection of candidature after due process.

8.2.6. All concessions permitted to Transgender candidates in the matter of choice of communal reservation category, shall be wholly dependent on the uploading / production of a Transgender ID card issued by the Tamil Nadu Transgender Welfare Board. Failure to upload / produce the same or uploading / production of a Transgender ID card issued by other authorities, shall result in rejection of candidature after due process.

Annexure III
Combined Technical Services Examination
(Diploma / ITI level)
Syllabus

Paper-I தமிழ் மொழி தகுதித் தேர்வு
பத்தாம் வகுப்பு தரம்

1. பிரித்தெழுதுதல் / சேர்த்தெழுதுதல்.
2. எதிர்ச்சொல்லை எடுத்தெழுதுதல்.
3. பொருந்தாச் சொல்லைக் கண்டறிதல்.
4. பிழை திருத்தம் (i) சந்திப்பிழையை நீக்குதல் (ii) மரபுப் பிழைகள், வழுவச் சொற்களை நீக்குதல் / பிறமொழிச் சொற்களை நீக்குதல்.
5. ஆங்கிலச் சொல்லுக்கு நேரான தமிழ்ச் சொல்லை அறிதல்.
6. ஒலி மற்றும் பொருள் வேறுபாடறிந்து சரியான பொருளையறிதல்.
7. ஒரு பொருள் தரும் பல சொற்கள்.
8. வேர்ச்சொல்லைத் தேர்வு செய்தல்.
9. வேர்ச்சொல்லைக் கொடுத்து / வினையெழுத்து, வினையெச்சம், வினையாலணையும் பெயர், தொழிற் பெயரை / உருவாக்கல்.
10. அகர வரிசைப்படி சொற்களை சீர் செய்தல்.
11. சொற்களை ஒழுங்குப்படுத்தி சொற்றொடராக்குதல்.
12. இருவினைகளின் பொருள் வேறுபாடு அறிதல்.
(எ.கா.) குவிந்து-குவித்து
13. விடைக்கேற்ற வினாவைத் தேர்ந்தெடுத்தல்.
14. எவ்வகை வாக்கியம் எனக் கண்டெழுதுதல் - தன்வினை, பிறவினை, செய்வினை, செயப்பாட்டு வினை வாக்கியங்களைக் கண்டெழுதுதல்.
15. உவமையால் விளக்கப்பெறும் பொருத்தமான பொருளைத் தேர்ந்தெழுதுதல்
16. அலுவல் சார்ந்த சொற்கள் (கலைச் சொல்)
17. விடை வகைகள்.
18. பிறமொழிச் சொற்களுக்கு இணையான தமிழ்ச் சொற்களைக் கண்டறிதல் (எ.கா.) கோல்டு பிஸ்கட் - தங்கக் கட்டி.
19. ஊர்ப் பெயர்களின் மருஉவை எழுதுக (எ.கா.) தஞ்சாவூர் - தஞ்சை
20. நிறுத்தற்குறிகளை அறிதல்.
21. பேச்சு வழக்கு, எழுத்து வழக்கு (வாரான் - வருகிறான்).
22. சொற்களை இணைத்து புதிய சொல் உருவாக்கல்.
23. பொருத்தமான காலம் அமைத்தல்
(இறந்தகாலம், நிகழ்காலம், எதிர்காலம்).
24. சரியான வினாச் சொல்லைத் தேர்ந்தெடு.
25. சரியான இணைப்புச் சொல்
(எனவே, ஏனெனில், ஆகையால், அதனால், அதுபோல).
26. அடைப்புக்குள் உள்ள சொல்லைத் தகுந்த இடத்தில் சேர்க்க.
27. இருபொருள் தருக.
28. குறில் - நெடில் மாற்றம், பொருள் வேறுபாடு.
29. கூற்று, காரணம் - சரியா? தவறா?
30. கலைச் சொற்களை அறிதல்:-
எ.கா. - Artificial Intelligence - செயற்கை நுண்ணறிவு
Super Computer - மீத்திறன் கணினி
31. பொருத்தமான பொருளைத் தெரிவு செய்தல்
32. சொற்களின் கூட்டுப் பெயர்கள் (எ.கா.) புல் - புற்கள்
33. சரியான தொடரைத் தேர்ந்தெடுத்தல்
34. பிழை திருத்துதல் (ஒரு-ஓர்)
35. சொல் - பொருள் - பொருத்துக
36. ஒருமை-பன்மை பிழை
37. பத்தியிலிருந்து வினாவிற்கான சரியான விடையைத் தேர்ந்தெடு.

**GENERAL STUDIES
(SSLC Standard)**

CODE: 003

Unit I: GENERAL SCIENCE

- i. Nature of Universe – Measurement of Physical Quantities – General Scientific Laws in Motion – Force, Pressure and Energy – Everyday application of the basic principles of Mechanics, Electricity, Magnetism, Light, Sound, Heat and Nuclear Physics in our daily life.
- ii. Elements and Compounds, Acids, Bases, Salts, Petroleum Products, Fertilizers, Pesticides, Metallurgy and Food Adulterants.
- iii. Main concepts of Life Science, Classification of living organisms, Evolution, Genetics, Physiology, Nutrition, Health and Hygiene, Human diseases.
- iv. Environmental Science.

Unit II: CURRENT EVENTS

- i. Latest diary of events – National symbols – Profile of states – Eminent personalities and places in news – Sports – Books and Authors.
- ii. Welfare Scheme of Government – Political parties and Political system in Tamil Nadu and India.
- iii. Latest inventions in Science and Technology – Geographical Land Marks – Current Socio – Economic issues.

Unit III: GEOGRAPHY

- i. Earth Location – Physical Features – Monsoon, rainfall, weather and climate – Water resources – Rivers – Soil, Minerals and Natural resources – Forest and Wildlife – Agriculture pattern.
- ii. Transport – Communication.
- iii. Population density and distribution in Tamil Nadu and India.
- iv. Calamities – Disaster Management – Environment – Climate change.

Unit IV: HISTORY AND CULTURE OF INDIA

- i. Indus Valley Civilization – Guptas, Delhi Sultans, Mughals and Marathas – South Indian History.
- ii. Characteristics of Indian Culture, Unity in Diversity – Race, Language, Custom.
- iii. India as a Secular State.

Unit V: INDIAN POLITY

- i. Constitution of India – Preamble to the Constitution – Salient features of the Constitution – Union, State and Union Territory.
- ii. Citizenship, Fundamental Rights, Fundamental Duties, Directive Principles of State Policy.
- iii. Union Executive, Union Legislature – State Executive, State Legislature – Local Governments, Panchayat Raj.
- iv. Spirit of Federalism: Centre - State Relationships.
- v. Election – Judiciary in India – Rule of Law.

vi. Corruption in public life – Anti-Corruption measures – Lokpal and Lokayukta – Right to Information – Empowerment of Women – Consumer Protection Forums – Human Rights Charter.

Unit VI: INDIAN ECONOMY

i. Nature of Indian economy – Five year plan models – an assessment – Planning Commission and Niti Ayog.

ii. Sources of revenue – Reserve Bank of India – Finance Commission – Resource sharing between Union and State Governments – Goods and Services Tax.

iii. Economic Trends – Employment Generation, Land Reforms and Agriculture – Application of Science and Technology in Agriculture – Industrial growth – Rural Welfare oriented programmes – Social Problems – Population, Education, Health, Employment, Poverty.

Unit VII: INDIAN NATIONAL MOVEMENT

i. National Renaissance – Early uprising against British Rule – Indian National Congress – Emergence of Leaders – B.R.Ambedkar, Bhagat Singh, Bharathiar, V.O.Chidambaranar, Thanthai Periyar, Jawaharlal Nehru, Rabindranath Tagore, Kamarajar, Mahatma Gandhi, Maulana Abul Kalam Azad, Rajaji, Subhash Chandra Bose, Muthulaksmi Ammaiyar, Muvalur Ramamirtham and other National Leaders.

ii. Different modes of Agitation of Tamil Nadu and movements.

Unit VIII: HISTORY, CULTURE, HERITAGE AND SOCIO-POLITICAL MOVEMENTS OF TAMIL NADU

i. History of Tamil Society, related Archaeological Discoveries, Tamil Literature from Sangam age till contemporary times.

ii. Thirukkural:

a) Significance as a Secular Literature.

b) Relevance to Everyday Life.

c) Impact of Thirukkural on Humanity.

d) Thirukkural and Universal Values – Equality, Humanism etc.

e) Relevance to Socio – Politico – Economic affairs.

f) Philosophical content in Thirukkural.

iii. Role of Tamil Nadu in freedom struggle – Early agitations against British Rule – Role of women in freedom struggle.

iv. Various Social reformers, Social reform movements and Social transformation of Tamil Nadu.

Unit IX: DEVELOPMENT ADMINISTRATION IN TAMIL NADU

i. Social Justice and Social Harmony as the Cornerstones of Socio- Economic Development.

ii. Education and Health systems in Tamil Nadu.

iii. Geography of Tamil Nadu and its impact on Economic growth.

Unit X: APTITUDE & MENTAL ABILITY

i. Simplification – Percentage – Highest Common Factor (HCF) – Lowest Common Multiple (LCM).

ii. Ratio and Proportion.

iii. Simple Interest – Compound Interest – Area – Volume – Time and Work.

iv. Logical Reasoning – Puzzles – Dice – Visual Reasoning – Alpha Numeric Reasoning – Number Series.

Paper-II Subject Paper

1. AGRICULTURE (Diploma Standard)

CODE: 431

Unit I: Agronomic principles, practices and meteorology

Agriculture – Definition – Branches of agriculture – Classification and status of major crops in Tamil Nadu. Factors affecting crop production. Cropping systems definitions - principles - intercropping - types, Principles and Practices of Agricultural Operations – Tillage definition and types - Intercultural Operations, Implements and Tools in Agriculture – Growth stages and yield prediction.

Meteorology – Agricultural Meteorology – Definition - Importance in Crop Production - Atmosphere – Components and its importance – Weather Parameters and their role in Crop Production. Rainfall – Spatial and Temporal Variability in Tamil Nadu across Seasons – Agro Climatic Zones of Tamil Nadu. Automatic weather stations and its components - Agroadvisory services.

Irrigation - water movement in soil – soil moisture constants – available soil moisture - effect of water stress on crop yield – water use efficiency – water requirement of major crops – critical stages of water requirement – irrigation scheduling – types and advantages – Irrigation methods – Micro irrigation – Flagship schemes and policies of Tamil Nadu - Irrigation water use efficiency – management of poor quality irrigation water - soil erosion due to water and control.

Weeds – definition and importance of weed control in crop production – classification of weeds – methods of weed management. Herbicide classification based on mode of action - method of application - common and new herbicides available in the market – weed control practices for major crops – parasitic, problematic and aquatic weed management - integrated weed management – concepts and practices.

Agronomic practices including climatic and soil requirement, land preparation – seeds and sowing – varieties – fertilizer management – irrigation – weed control – harvesting – Production technologies for cereals, millets, pulses, oilseeds, commercial crops, mulberry, forages and green manure crops.

Unit II: Farming system, Dry Farming and Agro-Forestry

Integrated farming system – models and components – Schemes of Tamil Nadu. Cropping schemes – Crop calendar of operation of major crops - Dry Farming – Definition and Present Status in Tamil Nadu – Soils of Dry Farming Tracts and their limitation to Crop Production – Major Crops of Dry Land. Suitable Dry Land Technology for increased Crop Productivity – Pre-monsoon sowing – Conventional Crop Production Vs Alternate land Use in Dry Land – Drought and disaster effects and management – crop insurance schemes - Integrated Farming Systems in drylands. Erosion - Classification of Erosion – Soil moisture conservation practices – agronomical, physical and biological methods - Cultivation Practices – Water Harvest – Farm Ponds – Percolation Ponds –Weather aberrations and Contingent Crop Planning – Watershed development – definition and components. Land use classification – Role of Forests – Agroforestry – Definition and types – Social Forestry, Urban Forestry – Agroforestry Systems - Shifting Cultivation – Alley cropping – Wind Break and Shelter Belts – Agroforestry Practices – Teak, Casuarina, Ailanthus, Neem, Bamboo, and Acacia production and management practices.

Unit III: Soils and Fertility Management

Definition of Soil – Its main components – Soils of Tamil Nadu. Soil physical, chemical and biological properties and their significance in crop production. Soil Micro Organisms - Importance of Organic Matter on Soil Properties. Acid, Saline and Alkaline Soils and their reclamation. Soil and water pollutants and management. Irrigation water – Qualities of irrigation water - Water testing. Soil Fertility – Major, Secondary and Minor Plant Nutrients. Soil Fertility evaluation, Soil sampling and testing and fertilizer recommendations – Soil health card. Fertilizers – Nitrogenous, Phosphatic and Potassic Fertilizers –

Complex and Mixed Fertilizers, Efficient use of Fertilizers – fertilizer management in major crops. Identification and management of major and minor nutrient deficiency symptoms in plants. Biostimulants – New age fertilizers – Crop Boosters - Remote sensing – GIS and GPS. Bio-Fertilizers – Groups of Bio-Fertilizers – Bacterial, Fungal, Algae and Azolla.

Unit IV: Horticultural Crop Cultivation Techniques

Status of major horticultural crops in Tamil Nadu – Methods of propagation of major fruit crops - role of growth regulators – Soil and climate requirement - production technologies - nutrient and physiological disorders and its management - post-harvest technologies for Mango, Banana, Grapes, Papaya, Sapota, Guava, Citrus, Pomegranate, Ber, Annona, Amla, Apple, Pear, Avocado, Dragon fruit, Plum and Pineapple.

Importance of Vegetables – Nutritive Value - Methods of propagation of major vegetable crops - role of growth regulators – Types of Vegetable Garden: Kitchen Garden, Nutritional Garden, Truck Garden, Commercial Garden - Soil and climate requirement - production technologies - nutrient and physiological disorders and its management - post-harvest technologies for Tomato, Brinjal, Chillies, Bhendi, Onion, Cucurbits; Cauliflower, Cabbage, Turnip, potato, beetroot carrot, greens and perennials.

Importance of flower crops – Methods of propagation of major flower crops - role of growth regulators – Soil and climate requirement - production technologies - nutrient and physiological disorders and its management - post-harvest technologies for Jasmine, Rose, Chrysanthemum, Marigold, Tuberose, Crossandra, Cockscomb.

Garden Design – Formal and Informal Gardens – Components of Garden – Lawns and Lawn Making - Study of Important Flowering Annuals, Flowering and Foliage Shrubs – Flowering and Foliage Trees – Creepers and Climbers – Cacti and Succulents – Indoor Plants and Indoor Decoration – Cut Flowers – Flower arrangement – Bonsai Culture and dry flower decoration.

Importance of aromatic and spices, medicinal and plantation crops – Methods of propagation - role of growth regulators – Soil and climate requirement - production technologies - nutrient and physiological disorders and its management - post-harvest technologies for Spices – Pepper, Cardamom, garlic, Clove, Nutmeg, Cinnamon, Allspice, Turmeric, Ginger, tamarind, Coriander and Fenugreek. Plantation Crops – Coffee, Tea, Coconut, Arecanut, Cashew, Cocoa and Rubber. Medicinal Crops – Coleus, Gloriosa, Ashwagandha, Senna, Keezhanelli, Agave, Thulasi and Achorus.

Tissue culture and micropropagation of horticultural crops – Totipotency – Regeneration – Callus culture – Somaclonal variation – hardening of tissue culture plants.

Unit V: Breeding and Seed Production

Field Crops – Importance – Classification – Agricultural and Industrial – Chemical Composition of Economic Parts in the Crops & Cereals, Millets, Pulses, Oilseeds, Fibres, Sugar and Starch Crops. Plant Photosynthesis – Respiration – Translocation of Assimilates. Floral biology – Reproductive and Pollination System in Plants – Mechanisms of promoting Self Pollination and Cross Pollination in crop plants – Plant genetic resources – importance – collection – characterization and conservation. Selfing incompatibility and male sterility- application and limitation – male sterility classification – GMS, CMS, CGMS, EGMS, and gametocides.

Breeding Techniques for Self Pollinated Crops – Pure line selection – Mass Selection – Hybridization and Selection – Pedigree Method – Bulk Method – Rice, Black gram, Groundnut. Two and three line breeding in rice. Breeding Techniques for Cross Pollinated and Often Cross Pollinated Crops – Mass Selection, backcross method - Heterosis Breeding – Development of Hybrids. Inbred development.

Single Cross – Double Cross and Poly Cross – Use of Male Sterile lines for Hybrid Seed Production – Synthetics and composites for crops like Maize, Cumbu, Redgram, Cotton, sorghum, Castor, Sunflower, Coconut. Breeding Methods for vegetatively propagated crops – Clonal Selection – Hybridization and

selection for crops like Sugarcane, Tapioca, Potato and fodder crops. Mutation in crop improvement – Polyploid in Crop Improvement – Inter Specific Hybridization. Importance and success stories. Geographical indications, PPV & FR Act and IPR.

Seed – Importance – Seed Quality Characteristics – Classes of Seed – Nucleus, Breeder, Foundation and Certified Seed – Guidelines for Seed Production – Multiplication Ratio – Seed Certification, general certification standards – Field Inspection and Certification – Seed Standards – Pollination and Role of Insects, Environmental and Edaphic Factors. Seed registration - Seed Production Techniques for Varieties and Hybrid in Rice, Maize, millets, Pulses, Cotton, Oilseeds, fodder crops and Important Vegetables: Tomato, Brinjal, Chillies, Bhendi, Lablab, onion and Cucurbits. Harvesting, Processing, Treatment, Storage, Seed Health and Marketing.

Unit VI: Plant Protection Principles and Practices

Insects - Definitions – Characters – Economic Classification – Sericulture – Rearing of Mulberry silk worms – Apiculture – Role of Bees in Crop Productivity – Hiving Bees and Apiary Management. Beneficial Insects – Insect Pollinators – Predators and Parasitoids. Pest – Definition – Categories of Pests – Pest outbreak – Pest Monitoring – Pest Surveillance – Forecasting – Economic Threshold Level – Economic Injury Level. Pest Management Components – Cultural, Physical, Mechanical, Legal and Integrated Methods – Use of Resistant Varieties, Biological Control – Parasitoids, Predator and Microbial Agents.

Pesticides – Groups, Classification, Mode of Action – Formulation and Uses, Principles of Pesticides application – Hazards in the use of Pesticides and Environmental Pollution – Safe Handling of Pesticides new and organic pesticides – Pesticide residue - Behavior modifying chemicals – Use of Pheromones in pest management and behavioral modifying chemicals; approach.

Damage symptoms - life cycle and Integrated management practices of insect and non insect pests of Rice, Millets, Cotton, Sugarcane, Pulses, Oilseeds, Brinjal, Tomato, Bhendi, Cucurbits, Crucifers, Moringa, Tapioca, Chillies, Onion, Coconut, Arecanut, Turmeric, Curry-leaf, Coffee, Tea, Cardamom, Pepper, Betelvine, Flower crops, Mango, Citrus, Banana, Grapes, sapota, Guava, Pomegranate, Pests of stored materials and their management.

Plant diseases – definition, Causes of plant diseases – Fungi, Bacteria, Viruses and Mycoplasma – Categories of plant diseases – Mode of spread – Environmental factors influencing diseases outbreaks. Control exclusion – Eradication – Immunization – Protection – Cultural – Methods of Control– Bio control – Economics of the new technologies, Useful fungi – mushroom, cultivation of Oyster mushroom, Trichoderma – utility – Nematodes – Types – Symptoms – Management.

Fungicide – Characteristics – Major groups – Formulation and Applications – Phytotoxicity – Precautions in using fungicides – Antibiotics in plant disease management. Bio technology and its application in disease management – Assessment of crop diseases and losses – Plant Disease Control - Principles - Integrated Pest Management of major diseases caused by Fungi, Bacteria, Virus and Mycoplasma in Cereals, Pulses, Oilseeds, Cash crops – Fruits – Vegetables – Plantation crops – Spices – Flowers and their management.

Unit VII: Livestock, Poultry Management, Artificial Insemination and Calf Rearing

Significance and role of livestock and poultry in Indian economy – Various systems of livestock production – extensive – semi intensive – intensive – mixed – Integrated farming systems – Manure management methods – Definition of breed – classification of indigenous, exotic cattle and buffaloes – Breed characteristics of Sindhi, Kangeyam and Umblacherry, Jersey, Holstein Friesian, Murrah and Surti. Breeding – importance of cross breeding.

Artificial Insemination – merits and demerits – Housing management – farm site selection space requirement for calves, heifer, milch animal and work bullocks – Type and design of house. – Systems of housing – Single row system – Double row system – head to head and tail to tail – merits and demerits –

Care and management of new born calf and heifers – Care and management of pregnant, lactating animals and work bullocks.

Milk – Definition – clean milk production – methods of milking – hand and machine milking – Processing of milk – cooling Pasteurization – Definition – Various methods – Low Temperature Long Time and High Temperature Short Time – advantages and disadvantages.

Nutrition – Definition – Ration – Balanced composition of concentrate feed for dairy animal, calf and work bullock – Requirement and importance of green fodder, carrying capacity and forage cycle.

Diseases – classification – Viral, bacterial and metabolic – General control and preventive measures. – Viral Diseases – Foot and mouth – Bacterial diseases – Anthrax, Haemorrhagic septicemia and Black quarter – Metabolic – Tympanites, Ketosis and Milk fever – Mastitis and its control – Zoonotic diseases (Anthrax, Tuberculosis, Brucellosis and Rabies) – Prevention and control.

Sheep and Goat farming – classification of breeds of Indian and exotic origin – Systems of rearing – Housing management – Type design – Floor diagram – Space requirement for adult and young stock – Nutrition – common tree Fodder for small ruminants – Common ailments of sheep and goat – Sheep pox – Foot and Mouth – Blue Tongue – Enterotoxaemia – Ecto and Endo parasites Systems of poultry rearing – Backyard, Intensive systems; Nomenclature of commercial layers and broiler strains – Care and management of day old chicks – Brooder management. Systems of housing – Deep litter and cage systems – merits and demerits – Raised platform housing – Floor space requirement – litter management – care and management of layers and broilers.

Poultry Nutrition – composition of chick mash grower, layer, broiler starter and finisher mashes – Feed Conversion Ratio / dozen eggs or kilogram of meat. Classification of Poultry diseases – Viral – Bacterial – Protozoan – Causative organisms, symptoms, causes and prevention – Viral diseases – Ranikhet disease - Infectious bursal disease - Bacterial disease – E. coli – Coryza – Salmonellosis – Protozoan – Coccidiosis – Vitamin and mineral deficiencies – Schemes, Policies, Subsidies in Animal Husbandry by Tamil Nadu.

Unit VIII: Farm Machinery, Post Harvest Technology and Energy and Environment

Thrashing Floor, drying floor. I.C. Engines – Types, Introduction – Preventive maintenance and minor repairs. Tractor – Different systems of a tractor – Hydraulic system – Clutch and Transmission system – Hitching of implements to Tractor – Power Tiller – and matching Implements. Seeders and planters. Plant Protection equipment –Harvesting machinery. Agricultural Pumps – Types of pumps – Custom hiring centre – e-vadagai.

Post Harvest losses in durable and Perishable crops – Moisture content – Methods of Determination – Drying – Sun Drying – Mechanical Drying – Merits and Demerits. Shelling and Decortication – Rubber Roll Sheller – Centrifugal Dehusker. Parboiling of Paddy – Merits and Demerits – Polishing – Milling of Corn and Pulses – Principles and Methods – Seed Treater – Types of Seed Treater. Storage of Grains and Seeds – Condition for safe storage – Value addition and suitable machineries for major food grains.

Energy Resources and Forms of Energy – Conventional and Non - Conventional Energy – Solar Energy – Merits and Limitations - Energy from Bio-Mass – Technologies – Classification and types of Bio-Gas Plants – Bio-Gas from Plant Wastes – Utilization of Bio-gas. Bio Fuel Plant – Gasifiers – Smokeless Chulas.

Ecology – Natural resources – Environmental Pollution and Management – Atmospheric Pollution – Particulate emission by industries and automobiles – Smog – Acid rain – Ozone hole – Global Warming – Causes, Effects and Control measures –Traditional farming methods – Eco-Safe technologies in agriculture.

Unit IX: Commercial Agriculture

Bio-control agents - Role in pest and disease management – Categories of bio-control agents. Setting up a bio-control laboratory. Mass culture of tobacco caterpillar (*Spodoptera litura*) and gram pod borer (*Helicoverpa armigera*)- synthetic diet – mass production of SINPV and HaNPV. Mass production of *Trichogramma* spp., *Chrysoperla*, coccinellid predators, *Trichoderma viride*, *Pseudomonas fluorescens* and Entomo-pathogenic nematodes

Biofertilizers – Microorganisms for crop nutrition – Types – Sources of good quality strains – Facilities – equipment – and raw materials required – Types and specification of carrier material – production of azospirillum, azotobacter, Glucano acetobacter, phosphate solubilizer, potash releasing microorganism, PGPR, azolla, BGA, PPFM, and AM fungi – Shelf life and storage of carrier and liquid based biofertilizers – constraints in mass production – storage and preservation – quality standard of commercial biofertilizers – quality control biofertilizer lab in Tamil Nadu.

Mushroom- Morphology: common edible mushrooms - Pleurotus, Calocybe - poisonous mushrooms - Laboratory techniques: sterilization - Media preparation, pure culture techniques, sub-culturing and storage. Spawn: types of spawn, mother spawn and bed spawn. Cultivation: Oyster mushroom, Milky mushroom – Problems in cultivation: Biotic and abiotic disorders - Uses of mushroom: as food, nutraceutical and pharmaceutical values, composting coir-pith and other agro-wastes – Post harvest technology: methods of preservation and value addition.

Fruit and Vegetable processing – Equipments and Accessories used in processing – Preparation of Squash, Syrup, Cordial, Nectar, Ready to serve beverages – Fruit juice concentrate – Paste, Powder, Bar – Jam, Jelly, Marmalade and Candy, Preserve – Pickles – Oil, Salt and vinegar – Tomato products – Ketchup. Sauce, Puree and Paste – Canning of Fruit and Vegetables – Dehydrated Fruit and Vegetables and Re-hydration – Preservation by low temperature – cut-out analysis of canned Fruit and Vegetables – Evaluation of Frozen Fruit and Vegetables – Osmotic dehydration

Seed Production –Selection of field – Maintenance of genetic purity – Removal of offtypes – Isolation distance - Manual emasculation and Pollination - Hybrids – Single cross - double cross – Production of hybrid seed – Varieties – seed production - Use of gametocide – Merits and demerits of hybrids and varieties - Selfing, emasculation and crossing technique in Rice, millets, oilseeds, pulses, Cotton, Tomato, Bhendi – clonal multiplication – Cumbu napier – Seed registration – Field inspection and certification.

Harvesting – Physical and chemical indices – Extraction techniques – Seed processing – Use of cleaner, grader – Seed treatment – Seed packaging – Seed storage – Sanitation – Certification procedure.

Nursery Technology – preparation of land and seed treatment – Sowing and raising of rootstocks (Fruits and Flower Crops) – Application of Liquid Manure and plant protection of rootstock – Potting materials and Preparation of pot mixture – Potting of Rootstock and Hardening - Selection of Scion Plants and Grafting, Aftercare of Grafted Plants, Graft Separation and Hardening – Preparation of Cuttings of Ornamental Plants, Treating the Cuttings with growth regulators and Planting in Mist Chamber in Beds/Polybags, Potting of Rooted Cuttings and Hardening – Air Layering of Ornamental/Fruit Crops – Budding of Ornamental Plants (Rose) – Maintenance of Potted Plants – Packing and Marketing.

Organic composting - Nutrient potential of different organic manures – Preparation of FYM Compost – Composting methods - Preparation of enriched FYM – Coirpith composting – Sugarcane trash – Pressmud - Farm wastes and farm weeds - Parthenium composting – Determination of maturity indices of composts - Commercial utility of organic manures –Introduction to vermicompost – Types of Vermicompost - Materials for vermicomposting. Preliminary treatment of composting material – Small Scale vermicomposting – Large scale vermicomposting – Other types of vermicomposting – Requirements for vermicomposting – Bedding materials, container, pH, Moisture content, Temperature – Cover feed substrates - Selection of right type of worm species – Preparation of vermicompost beds – Collection of

Vermicompost – Vermicompost efficiency – Transportation of live worms – Application of vermicompost

Unit X: Agricultural Extension Agricultural Economics and Digital Agriculture

Rural Economics and Agricultural Economics – Meaning, importance and scope Sectors of Economy - Importance of agriculture in rural economy: Problems of rural economy – Population growth and its consequences. Agents of production: Land distribution – Size of land holding – Man-Land ratio - Subdivision and Fragmentation – Land reform – Ceiling on land holding, Tenurial reforms, Consolidation of land holdings

Cooperative farming and Bhoodhan movement – Success and failure. Rural labour: Meaning – Classification – Characteristics of rural labour – agricultural labour – Employment, wages and income - Minimum wages Act and other welfare measures.

Rural Banking and Finance: Meaning and Concept – Classification and purpose

Sources of finance – Institutional and non-institutional – Government, cooperatives, nationalized commercial banks, regional rural banks and land development banks, private money lenders and other traditional sources – Establishment of NABARD and its role, Multi-agency, Service area approach. Rural industries: Importance and their classification – Investment needs – Generation of employment.

Types of agro-industries – Rural industries project - Khadi and Village Industries

Problems of rural industries – Potentials for development of agro- industries from agricultural products and wastes – Sugarcane, Cotton seed, Banana sheath, Forestry products – Rural technologies – Technology gap – Economic and social constraints in the spread of technology. Study of important and recent rural development schemes.

Marketing and agricultural marketing – Concepts - definition and scope – Classification of Markets – Structure – Characteristics of agricultural commodities: Problems in grading and standardization. Marketing costs and marketing margins. Price spread. Advantages and problems.

Cooperative agricultural marketing societies and regulated markets – Role of National Agricultural Cooperative Marketing Federation and TANFED. Role of specialized agencies viz., Food Corporation of India, Central Warehousing Corporation, State Warehousing Corporation in marketing of agricultural commodities and CCI – Role of Regulator Markets – Agmark – e-NAM.

Price support programmes – Buffer stock operations – Role of Commission on Agricultural Costs and Prices – Price stabilization. Agmark grading and commercial grading – Marketing information and intelligence – Marketing of agricultural inputs viz., seeds, fertilizers, plant protection chemicals and implements.

Sociology – Rural Sociology – Characteristics of rural society. Rural Youth – Their needs and aspirations. Basic rural institutions and voluntary agencies. Leadership – Classification, Characteristics and their influence. Motivation – Methods of Motivation. Social change. Adoption – Meaning, Stages, Adopter categories and their characteristics. Extension methods – Classification – Individual contact - group contact and mass contact methods. Extension aids – Audio aids, Visual aids and Audio Visual aids. Print and Electronic media. Photography, new achievements in communication technology – Transfer of Technologies through demonstrations – Field day – Exhibition – Mass media.

Visit to a village – Identifying resources, conducting participatory rural appraisal (PRA), conducting SWOT (strengths, weaknesses, opportunities and threats) analysis and preparing action plan for village development.

Visiting farmers – Analysis of farm resources and studying the life style of farmers, earnings, enterprises, expenditure pattern, technical information seeking behavior and dissemination of technologies. Finding the factors of adoption of technologies.

Problem diagnosis study – visiting farmers' fields, identifying technical and frequent problems like soil,

pest, disease, disorders and other problems in agriculture, obtaining solutions from known sources and providing them to the farmers.

Visiting agro service centers – Studying the business techniques, farmers approach, distribution pattern, dealership pattern, knowing different agro chemicals available in markets and their prices, gaining experience in solving the farmers problems in agro service centers .

Visiting daily vegetable wholesale markets – uzhavar sandhai - assessing the price fluctuation and preparing price trend calendar for different vegetables. Preparing line chart for maximum price of different vegetables grown in the district and identifying optimum sowing period for different vegetables.

Study the potentialities, prospects and to get clear knowledge about starting agro industries and food processing industries – PMFME – Schemes and policies of government of Tamil Nadu in Agriculture – Establishment – Farmers group – FPO – Role and Functions.

Application of computer in agriculture - Multimedia Presentation – power point - Internet and E- Mail – Online reporting system – Major Apps and Web Portals (Uzhavan app, Agris net portal, Tamil man valam and latest apps) for improving livelihood of farmers - Application of artificial intelligence and IoT in agriculture.

2. ARCHITECTURE (Diploma Standard)

CODE: 323

UNIT I: ENGINEERING MECHANICS

Simple Stresses and Strain – Stress and Strain – Modulus of Elasticity / Elastic constants – Application of stress and strain in engineering field – Behaviour of ductile and brittle material – Loads – Shear Force and Bending Moment – Geometrical properties of sections – Centroid – Moment of Inertia – Stress in Beams and Shafts – Stresses in Beams due to bending – Stress in shafts due to torsion – Pin Jointed Frames - Analytical Method – Graphical Method.

UNIT II: BUILDING MATERIALS & CONSTRUCTION

Properties, characteristics, strengths, manufacturing, components & applications of materials & methods of construction & detailing for the following:

Stone – Brick & Clay Products – Lime – Cement – Timber – Concrete – Ferrous and Non-Ferrous Metals – Glass – Plastics – Asphalt, Sealants & Adhesives – Protective and Decorative Coatings – Water Proofing and Damps Proofing Materials – Rural Building Materials(Bamboo, Soil, etc.).

UNIT III: HISTORY & THEORY OF ARCHITECTURE

History of Architecture

Egyptian Architecture – Greek Architecture – Roman Architecture – Early Christian & Byzantine Architecture – Gothic Architecture – Renaissance Architecture.

Indian Architecture – Indus Valley Civilization, Buddhist Architecture, Hindu Architecture – Islamic Architecture in India.

Modern Architecture, Post Modernism, Deconstructivism Contemporary World Architecture.

Theory of Architecture

Definition of Architecture – Architecture as satisfying functional, aesthetic & psychological human needs. Elements of Architecture – Form, Space, Light, colour, etc.

Principles of Architecture – Proportion, Balance, Scale, Symmetry, etc.

UNIT IV: STRUCTURAL ENGINEERING

Slope and Deflection of Beams – Propped Cantilevers – Fixed Beams – Arches – Continuous Beams – Theorem of Three Moments – Continuous Beams – Moment Distribution Method – Columns and Struts – Combined Bending and Direct Stresses – Earth Pressure and Retaining Walls – Working Stress Method Design of Beams for Flexure by L.S.M – Design of T-Beams and Continuous Beams by L.S.M – Design of Beams for Shear by L.S.M – Design of Oneway Slabs by L.S.M - Design of Twoway Slabs by L.S.M - Design of Staircases by L.S.M - Design of Columns by L.S.M - Design of Column Footings – Design of Simple Beams – Design of Tension Members – Design of Compression Members – Design of Welded Connections.

UNIT V: ENVIRONMENTAL ENGINEERING

Sources of Water – Collections and Conveyance of Water – Quality of Water – Treatment of Water – Distribution System – Appurtenances and Maintenance of Water Lines – Collections and Conveyance of Sewage – Treatments and Disposal – Environmental Pollution and Control – Industrial Waste Water Treatment and Solid Waste Disposal – Land, Water & Air Pollution.

UNIT VI: BUILDING SERVICES

Water Supply & Sewage Disposal, Mechanical Systems – Pumps & Motors, Electrical Systems – Generation & Distribution, Ventilation & Lighting, Air Conditioning – Principles, systems & applications, Vertical Transportation systems, Fire Hazards, Safety & Design Regulations, Acoustics.

UNIT VII: SITE SURVEY & PLANNING

Chain Surveying – Compass Surveying – Plane Table Surveying – Levelling – Theodolite – Contouring – Minor Instruments.

Site Drawings – Site marking, Importance & procedures for making site drawings & dimensioning.

UNIT VIII: SPECIFICATION & ESTIMATION

Stages of Detailed Estimate – Measurements & Material Requirement – Specification & Report Writing – Approximate Estimates – Areas and Volumes – Data – Valuation – Detailed Estimate.

UNIT IX: TOWN PLANNING

Town Planning Principles – Road and Street Planning – Housing – Economy, Society, Environment and Transport Policy and Planning – Town Planning Rules, Building Bye-Laws & Development Control Rules.

UNIT X: COMPUTER AIDED DRAFTING & VISUALIZATION

2D & 3D Drafting & Visualization - Using AutoCAD, etc– Setting limits and creating entities like LINE, ARC, CIRCLE etc – Editing the drawing with edit commands like TRIM, FILLET, COPY, MOVE etc., Creating 2D building working drawings.

Visualization using SKETCH UP, 3DMAX, etc.

3. AUTOMOBILE AND MECHANICAL ENGINEERING

(Diploma Standard)

CODE: 310

(a) AUTOMOBILE ENGINEERING

UNIT I: MECHANICS OF MATERIALS

Structure of metals - Ferrous alloys Non ferrous metals and alloys - Heat Treatment of steel and surface heat treatment or case hardening - Toughening - Normalising – refining-Mechanical properties of materials - Simple Stress and strain – Modulus of elasticity- Shear force, Twist, Theory of simple bending, deflection.

UNIT II: PRODUCTION TECHNOLOGY

Foundry - Patterns - Casting Techniques - Welding - Drilling - boring and Jig boring machines – Milling machines - Grinding machine - Cylinder Boring and honing machines. Lathes - Gas welding - Arc welding Brazing and soldering.

UNIT III: ELECTRICAL AND ELECTRONICS ENGINEERING

Units and symbols - AC and DC - Electro magnetisms - EMF - DC Circuits - Battery types Dry, Wet - DC Generators - DC Motors and Starters - Transistor - Capacitor - Diodes - Rectifiers - circuit breakers, Electronic components - symbols.

UNIT IV: BASICS OF MECHANICAL ENGINEERING

Fluid mechanics : Properties of fluids - flow of fluids - Flow of fluids in closed conduits - Reciprocating pumps - Centrifugal pump – Gear pumps and vane pumps - Hydraulic systems – Thermal Engineering - Properties of Gases - Expansion of Gases - Air cycles – Fuels- Fuel characteristics – Octane number and Cetane number – Lubricants Viscosity, Flash point, Fire point and Pour point - Air compressors performance - IC Engine performance.

UNIT V: AUTOMOBILE ENGINES

Principles of 2 stroke and 4 stroke engines - Engines Valve timing, - port timing - Valve arrangements - Engine blocks - cylinder heads - Wet and dry liner - Pistons - connecting rod - Crank shaft - Camshaft - timing gears - valve/ports - Firing order - Static balance - Dynamic balance - cooling systems - Radiators - Lubricating system - Lubricating oil characteristics Crank case ventilation - Engine testing/Fault finding, equipments - Carburation and Carburettors – MPFI - Diesel Engine for Automobile purpose - Combustion process of Diesel engines - Diesel knock – Diesel - combustion chamber types – CRDI - Injectors types - Feed pumps - - Fuel Injection Pumps - Phasing and Calibration - Governors' - Super charges and Turbo Chargers – EGR - Emissions Control system in engines - Maintenance and servicing.

UNIT VI: AUTOTRONICS

Battery lead acid - types - capacity - coil ignition system - Magneto ignition system and transistorised ignition system - ignition timing - spark plugs - starter motors - Alternators - voltage and current regulator - cutout unit. Flasher unit - wiring looms - circuits lighting - Auto cable - symbols

UNIT VII: TRANSMISSION AND CONTROLS

Friction and Transmission of motion - Clutches - Gearboxes - Epicyclic gear box - Pre selector gear box - universal joints - Differential - Floating axles. Constant velocity joints - suspension system - independent front suspension systems - steering types - caster - camber - toe in – toe out – power steering – types - wheel balancing - brakes - Testing its efficiency – Anti-lock braking systems - Tyres - tubes - Types and maintenance- Trouble shooting - Preventive Maintenance and servicing.

UNIT VIII: INDUSTRIAL MANAGEMENT AND ROAD TRANSPORT ORGANIZATION

Leadership - Morale – Motivation - Production planning and control - Personnel - Materials - Financial Management – Depreciation calculation using straight line method and sinking fund method – ABC analysis. Goods Transport, Passenger transport, Operational Layout of service station and garages - Bus stand - Classification - passenger transport organization and Administrative set up. Motor Vehicle act - Road signals - Traffic signals - Permit - Registering vehicle - Fitness certificate - Ticket system. Study to improve services, Accident claim. Market research - costing in Road transport Running cost.

UNIT IX: BODY BUILDING TECHNOLOGY

Terminology - classification of motor vehicle body - passenger transport - goods Transport - Cars - Chassis - frame principle - Aerodynamic body considerations. Body shape – NVH – definition - NVH elimination - Bus body construction. Goods vehicle construction - Tanker, Tipper Constructions - Ergonomics of Driver seat design - Painting - Body repairing - maintenance and safety on painting

UNIT X: COMPUTER INTEGRATED MANUFACTURING

CAD – Definition – geometric modeling – wireframe, surface and solid modeling – graphic standards – GKS, IGES, PHIGS and DXF. CAM – definition – group technology – part families – parts classification and coding – CAPP – types. CNC – definition – components of CNC – ATC – CNC EDM. Part program – format – coordinate system – types of motion control – types of interpolation – G and M codes – sub program – canned cycles.

(b) MECHANICAL ENGINEERING

UNIT I: INDUSTRIAL MANAGEMENT

X and Y theories of Management, Contributions of Henry Fayol and F.W. Taylor for Management - job evaluation by Ranking method and factor comparison method - motivating techniques - fixing selling price of a product - break even analysis for make or buy decision - sinking fund method and straight line method of calculating depreciation - ABC analysis – determination of economic order quantity – TQM – ISO standards - certification

UNIT II: INDUSTRIAL ENGINEERING

Factors influencing plant location - principles of layout - techniques used to improve layout - primary and secondary causes of an accident - personal protective devices - method study procedure - flow diagram, string diagram and two handed process chart - principles of motion economy-procedure for conducting stopwatch time study, production study and ratio delay study - objectives of preplanning, routing, scheduling, despatching and controlling - difference between inspection and quality control - types of plant maintenance - TPM

UNIT III: PRODUCTION TECHNOLOGY

Foundry - patterns - special casting techniques - welding - hot and cold working – drawing, rolling and forging - powder metallurgy - plastics - rubber - ceramics - refractories - lathe work - planner - shaper - slotter - drilling machine - milling machines - grinding machines - broaching - boring and jig boring - - Gears manufacturing practice - Heat treatment and metal finishing - press work

UNIT IV: ELECTRICAL AND ELECTRONICS ENGINEERING

Units, Ohm's law, Kirchoff's law, Faraday's law - D.C. Circuits, batteries - electro magnetism - single phase and three phase A.C. circuits - Induction motors – Electronics – diodes – resistors – capacitors – transistors – logic gates.

UNIT V: MECHANICS OF MATERIALS

Mechanical properties of metals - simple stresses and strains – modulus of elasticity - geometrical properties of sections - thin cylinders bending moment and shear force - theory of simple bending - torsion and springs - transmission of motion – gear drives and belt drives.

UNIT VI: HEAT POWER ENGINEERING

Working principle and comparison of otto and diesel cycles - construction and working of two stroke and four stroke engines - Heat balance test on I.C. engine - working principle of single and multistage compressors - Comparison of reciprocating and rotary compressors - classification of steam boilers - construction and working of steam turbines - working principle of steam power plant - Main elements of a nuclear power plant - Vapour compression cycle - factors affecting human comfort - working principle of a window air conditioner and central air conditioning system.

UNIT VII: COMPUTER APPLICATIONS

Working principle and constructional details of computer - classification of computer – Input / Output devices - flow charting – MS Office & Star Office – creating documents – presentations – sending emails.

UNIT VIII: FLUID MECHANICS AND MACHINERY

Working of differential manometer - use of venturimeter and orifice classification of mouth pieces meter -

working of pelton wheel, francis turbine and kaplan turbine - construction and working principle of reciprocating pump, centrifugal pump and gear pump - quick return mechanism of shaping machine - table movement in a milling machine.

UNIT IX: COMPUTER INTEGRATED MANUFACTURING

CAD – Definition – geometric modeling – wireframe, surface and solid modeling – graphic standards – GKS, IGES, PHIGS and DXF. CAM – definition – group technology – part families – parts classification and coding – CAPP – types. CNC – definition – components of CNC – ATC – CNC EDM. Part program – format – coordinate system – types of motion control – types of interpolation – G and M codes – sub program – canned cycles.

UNIT X: DESIGN OF MACHINE ELEMENTS

Factors affecting selection of material – classification of bearings – sliding contact and rolling contact bearings – radial and thrust bearings – limits – fits – tolerance – classification of fits – cams and followers – types

4. CIVIL ENGINEERING (Diploma Standard)

CODE: 299

UNIT I: ENGINEERING MECHANICS

Direct Stresses and strains (Tensile and compressive) due to Axial forces – Deformation of elastic bar due to uni-axial force - Shear force and bending moment diagrams for statically determinate beams - Geometrical properties of sections - Stresses in beams due to bending – Stresses in shafts due to torsion – Pin jointed perfect frames with vertical loads on nodal points (method of joints only).

UNIT II: MECHANICS OF STRUCTURE

Deflection of cantilever and simply supported beams – Shear force and bending moment diagrams for statically indeterminate structures (Propped cantilever, Fixed Beams, continuous beams, Non-sway Portal frames) using Mohr's theorems and moment distribution method.

Euler's and Rankin's formula for columns – Stresses due to eccentric loads – combined stresses due to direct loads and bending moments in rectangular sections.

UNIT III: CONSTRUCTION MATERIALS & CONSTRUCTION PRACTICE

Bricks, Tiles, Cement, Fine Aggregate, Coarse Aggregate, Timber, Ply wood, Steel, Glass, Plastics, PVC, UPVC, Paints, Mortars, Concrete – Different types, qualities, requirements, standard specifications, Admixtures for cement mortar and concrete.

Different types of Foundations, Masonry, Floors, Roofs, Doors and Windows, Weathering Course, Damp proof course, Plastering, Painting, Colour Washing – Specifications for different works.

UNIT IV: TRANSPORTATION ENGINEERING

Roads – Different types – methods of formation of water bound macadam, bituminous and concrete roads – Hill roads – Requirements – Camber, gradient, super elevation, carriage way, pavements, drainage system, sight distance etc., Traffic Engineering, Bridges – Classification of bridges – Site selection and alignment – Foundation, substructure and super-structure.

Sub-grade soil – Soil mass as a three phase system – Grain size classification - Atterberg limits – IS Classification of soils–Compaction – Shear strength – Road Arboriculture – Express Highways – Rapid Transport System.

UNIT V: HYDRAULICS

Measurement of pressure in liquids – Pressure distribution and total pressure on immersed surfaces – Types of flow (Laminar, turbulent, steady, unsteady, uniform, nonuniform) – Flow through pipes –Losses – Hydraulic gradient and total energy lines. Bernoulli's theorem – use of Orifice, Mouthpiece, Orifice meter

and Venturimeters – Flow through channels – Bazin's and Manning's formula – Economical sections for open channels, Pumps – Reciprocating pumps – Centrifugal pumps – Characteristics – Discharge – Power and efficiency, Ground water – Types of well – Test for yield of wells.

UNIT VI: SURVEYING

Types of Surveys – Chain surveying – Compass surveying – Levelling – Contour surveying – Theodolite surveying – Trigonometrical levelling – Tacheometry – Field work – Simple problems. Curves, Global Positioning System (GPS), Remote sensing – Photogrammetric Surveying and Hydrographic Surveying, Total Station and Geographical Information System (GIS).

UNIT VII: ENVIRONMENTAL ENGINEERING AND POLLUTION CONTROL

Sources of water – Conveyance of water – Treatment of water – Quality of water – Tests on water – Distribution systems – Sewers – Collection and conveyance of sewage – Sewer Appurtenances – Drainage arrangements and Sanitary fittings in buildings – Treatment and disposal of sewage, Solid waste Management.

Environmental pollution – Air – water – Soil – Noise - Pollution Control.

UNIT VIII: ESTIMATING AND COSTING

Systems of taking out quantities – Trade and Group systems – Material requirement for different items of works – Preparation of data for works – Report writing – Valuation of buildings and properties – Fixation of rents – Approximate estimates – Detailed estimate and Abstract estimate for buildings, well, sump, septic tanks, compound wall, roads etc.

UNIT IX: STRUCTURAL ENGINEERING

Reinforced cement concrete structure – Analysis and design of singly and Doubly reinforced rectangular and T-beam sections – Cantilever, simply supported, continuous beams – One way and two way slabs – Lintels and sunshades – Staircases – Rectangular and circular short columns – Isolated column footings. (All designs by Limit State Method only).

Steel structures – simple beams – Tension and compression members – simple columns.

UNIT X: CONSTRUCTION MANAGEMENT

Planning of a project – Factors to be considered – Project reports – Organization structure on construction departments – Construction planning – CPM and PERT networks – Contracts – Tenders and Tender documents – Bill- Supervision and Quality control – Safety measures in construction sites – Banking practice – Cash flow diagrams.

Entrepreneurship, Ethics in Engineering, Use of computers – Information Management, Financial Management, Disaster Management – Types of Natural calamities – Causes for major disaster – Preparedness – Response and Recovery.

5. ELECTRICAL ENGINEERING / ELECTRICAL AND ELECTRONICS ENGINEERING (Diploma Standard)

CODE: 336

UNIT I: CIRCUIT THEORY AND DC MACHINES

Electrostatics - Fundamentals of electric circuits - DC Circuits - Network Theorems (Simple problems in DC) - Single phase AC and 3 phase AC circuits – Resonant circuits- Electro magnetism - DC Generator - Types - construction - working - characteristic curves - Armature reaction- application. DC Motor - Types - construction - working - characteristics - commutation - application - speed control – D.C Starters – Maintenance of DC machines – Storage batteries.

UNIT II: A.C. MACHINES AND SPECIAL MACHINES

Single phase transformer - construction - EMF equation - OC & SC Test - Regulation and efficiency- parallel operation. Three phase transformer – construction – Testing - Parallel operation – Maintenance Alternator - construction - EMF equation - methods of obtaining sine-wave - parallel operation – Testing– Determination of voltage regulation. Synchronous Motor - construction - starting methods - application. 3 phase induction motor - construction and working principle - phasor diagram - starters - speed control - maintenance. Single phase induction motors - working principle – types- applications - Special machines - PMSM, SRM, Stepper motor, PMBLDC motors.

UNIT III: MEASUREMENTS AND INSTRUMENTS

Classification and characteristics of instruments - operating forces– construction and working of M.I., MC and Dynamometer type instruments – Instrument transformers- Direct measurement of current, voltage and resistance- Measurement of Power – Measurement of energy- single phase and 3 phase Energy meters. Measurement of power factor - Maximum demand indicator - Synchroscope - Measurement of frequency - AC Bridges - Anderson bridge - Schering bridge- Cathode ray Oscilloscope – Sensing elements - Transducers – Passive, active transducers.

UNIT IV: ELECTRONIC DEVICES AND CIRCUITS

Semi conductor Diodes –Rectifiers – Half wave, full wave and Bridge rectifier- Filters- 3 phase rectifiers - Bipolar junction Transistors (BJT) – biasing - configuration - Field effect Transistors (JFET & MOSFET) and Uni junction Transistor (UJT) – Transistor oscillators - Special semiconductor devices - Gunn diode, varactor diode, Zener diode, Tunnel diode - Silicon controlled Rectifier - DIAC - TRIAC –IGBT –Opto electronic devices – LDR, LED, LCD, Opto coupler, IR transmitter and receiver, Laser diode , Solar cell, Photo diode, Photo transistor – Diode clipper – Diode clamper –Voltage doubler - Multi vibrators -Astable, Monostable, Bistable – Schmitt trigger.

UNIT V: ANALOG AND DIGITAL ELECTRONICS

Operational amplifiers - characteristics – applications - Number system- Boolean algebra- De-Morgan's theorems - Logic gates- Digital logic families- Combinational circuits - Sequential circuits – Flipflops, Counters, shift registers – Memory devices - D / A and A / D converters.

UNIT VI: GENERATION, TRANSMISSION AND SWITCH GEAR

Generation of electrical energy – Inter connected system – Load curves and load duration curves–Tariff - Economics of power generation - Fuel cells – AC transmission - voltage regulation and transmission efficiency - Sag – HVDC transmission - Line Insulators and Underground cables- Cable faults –Murray loop test for cable fault detection -Circuit breakers - Lightning arrestors - Fuses - HRC fuse – Protective relays - Grounding.

UNIT VII: DISTRIBUTION AND UTILISATION

AC and DC Distribution - Substations – Busbar system - Industrial Drives - Types of electric drives and choice of electric motor. Electric Traction –System of track electrification -Traction mechanics - Traction motors and control – Magnetic levitation. Illumination - Laws of illumination –Lighting systems - construction and characteristics of Arc, incandescent, Sodium vapour, Mercury vapour CFL and LED lamps. Electric heating – Electric furnaces – Electric welding - Electric welding equipments.

UNIT VIII: MICRO PROCESSOR AND MICRO CONTROLLER

Introduction to microprocessors - 8085 micro processor - Architecture – Instruction set – Addressing mode – Instruction cycle.

8051 micro controller – Architecture – Instruction set – Assembler - Addressing modes - Programmes – I/O programming – Timer programming- Serial communication – Interrupts- IC 8255 - Peripheral interfacing techniques with 8051 – Applications.

UNIT IX:

(A) POWER ELECTRONICS AND DRIVES

Thyristor family- SCR trigger circuits – Commutation circuits- Phase controlled rectifier – Choppers – Inverters – SMPS –UPS – Control of DC drives – Four quadrant control of DC motor - Control of AC drives.

(B) ELECTRICAL ESTIMATION & ENERGY AUDITING

Indian Electricity Rules - 1956-Standard symbols for various wiring items, accessories - Wiring systems – wire size – Selection of fuses - Earthing - Testing of installations - Domestic, commercial and industrial installation estimate – Energy auditing- Energy conservation – Selection of cable – Lighting systems – Pumping systems.

UNIT X: CONTROL OF ELECTRICAL MACHINES

Control circuit components –Switches, relays, timers, contactors – DC motor control circuits- Jogging, dynamic braking, plugging, reversing control circuit- speed control using UJT& SCR – AC motor control circuits- DOL starter, Auto transformer starter, Star-delta starter – Rotor resistance starter – plugging – dynamic braking – Industrial control circuits - Programmable logic controller – Components of PLC - Input module – output module - programming – Ladder diagram for DOL, star- delta starter.

6. HANDLOOM TECHNOLOGY / TEXTILE TECHNOLOGY/ TEXTILE MANUFACTURE (Diploma Standard)

CODE: 339

UNIT I: FIBRE PROPERTIES AND MAN-MADE FIBRE SPINNING

- i) Properties of textile fibres
- ii) Classification of Textile fibres – vegetable, animal, mineral, regenerated, synthetic
- iii) Microscopic, physical and chemical test methods for fibre identification
- iv) Physical & Chemical properties of Vegetable fibres – Cotton, Jute, linen
- v) Physical & Chemical properties of Animal fibres – Wool, Silk
- vi) Physical & Chemical properties of Regenerated Cellulosic fibres – Viscose and Acetate Rayon, Cuprammonium Rayon
- vii) Physical & Chemical properties of Synthetic fibres – Polyester, Nylon
- viii) Requirements of fibre forming polymers
- ix) Spinning of Polymers - Melt Spinning, Wet spinning, Dry spinning
- x) Post Spinning Operations – Drawing, Crimping, Heat setting, Texturisation and spin finish application

UNIT II: SPUN YARN FORMATION

- i) Ginning – Principle, machines and gin out-turn.
- ii) Objectives / Principles of opening, cleaning and mixing/blending machines
- iii) Working mechanisms of blowroom, card, drawframe, comber, comber preparatory, speedframe, ringframe, doubling machinery.
- iv) Salient features of blowroom, card, draw frame, comber, comber preparatory, speed frame, ring frame, doubling machinery.
- v) Working principles and features of open end spinning machines – rotor, airjet and airvortex
- vi) Norms and Critical settings related to quality / production in spinning machinery.
- vii) Yarn conditioning, reeling, bundling and baling
- viii) Maintenance of spinning machines

UNIT III: TEXTILE CALCULATIONS

- i) Calculations of speed, draft, hank, production and efficiency in spinning machines.
- ii) Production and efficiency calculations in Winding, Warping, Sizing and Weaving
- iii) Indirect count systems –English, French, Worsted, linen and metric
- iv) Direct count systems – Tex and Denier.
- v) Conversion of yarn count from one system to other -Within Indirect, within Direct systems
- vi) Conversion of yarn count from indirect to direct systems and vice versa
- vii) Resultant count of folded yarn, Average count, Yarn Costing
- viii) Reed and heald calculations; Fabric cover, Fabric Costing.

UNIT IV: FABRIC FORMATION

- i) Objectives of preparatory processes
- ii) Preparatory processes for handloom industry
- iii) Warp winding - random and precision winding, winding drum parameters
- iv) Stop motions, yarn clearers, tensioners and knotters/splicers
- v) Warping –Types of warping, Creels, Length measurement, stop motion
- vi) Working principles of Pirn winders
- vii) Sizing –Ingredients, Size recipes for cotton, silk and blends of cotton with polyester and viscose.
- viii) Principles of Drawing-in and Denting.
- ix) Primary, Secondary and Tertiary motions of loom, Loomtiming diagram.
- x) Tappet, Dobby and Jacquard shedding, Handloom shedding motion, Drop Box mechanism.
- xi) Features of Pit loom, raised pit loom, frame loom, semi-automatic loom and improved handlooms.
- xii) Principles of Shuttleless Weft insertions systems.
- xiii) Maintenance of shuttle and shuttleless looms
- xiv) Fabric defects – causes and remedies

UNIT V: FABRIC STRUCTURE

- i) Elements of woven fabric design – weave, draft and peg plan
- ii) Construction of Weaves - Plain weave and its derivatives, Regular and Modified Twills, Sateen and Satin, Crepe, Honey comb, Brighton honey comb, Mock-leno, Huck-a-back, Bedford cords, Welt, pique, backed cloth, Double Cloth, Triple Cloth, Tubular cloth, damask, tapestry, patent satin.
- iii) Extra warp and Extra weft figuring
- iv) Terry Pile – 3 pick, 4 pick, 5 pick and 6 pick terry weaves.
- v) Cut Pile – Velvets and Velveteens.
- vi) Gauze and Leno structures
- vii) Colour and Weave Effect
- viii) Computer Aided Textile Designing (CATD) – Photoshop, Corel Draw, Paintshop Pro and CATD softwares

UNIT VI: CHEMICAL PROCESSING

- i) Preparatory processes – Desizing, Scouring and Bleaching – Objectives, Machines and Methods
- ii) Mercerisation – Objectives, Machines and Methods
- iii) Dyeing techniques for cotton, silk and blends– Direct, Reactive, Vat, Acid, Basic and Disperse dyes.
- iv) Batchwise and Continuous dyeing. Dyeing machines.
- v) Styles of printing – Direct, Resist, Discharge.
- vi) Printing techniques – Roller, Rotary Screen, Flat bed.
- vii) Mechanical and chemical finishing – calendaring, anti-shrink, resin finish, water repellent finish, flame retardant finish.

UNIT VII: KNITTING, GARMENTS & MODERN DEVELOPMENTS IN HANDLOOMS

- i) Knitting - Yarn quality requirements, principles of weft and warp knitting
- ii) Basic weft and warp knitted structures and its properties – plain, rib, interlock and purl.
- iii) Garments - Pattern making, Spreading, Cutting, Sewing
- iv) Developments in Handlooms – Solid border weaving, multiple putta weaving, pneumatic / electrical lifting devices for jacquard, electronic jacquard for handlooms.

UNIT VIII: TESTING & QUALITY CONTROL

- i) Important terms in Textile quality control – Mean, Median, Mode, SD, SE and CV.
- ii) Calculations related to test of significance.
- iii) Control charts and their applications in textile quality control.
- iv) Sampling techniques – objectives and types of sampling
- v) Humidity control – Standard and Testing atmosphere, Measurement of Relative Humidity.
- vi) Measurement of fibre length, strength, fineness, maturity and trash
- vii) Determination of yarn count, twist – Twist per unit length, twist multiplier; strength - CSP, RKM; elongation, hairiness, Evenness

- viii) Determination of fabric strength, stiffness, handle, drape, thickness, GSM, crease resistance, abrasion resistance, pilling resistance, air / water permeability, dimensional stability.
- ix) Determination of fastness to washing, rubbing, light.
- x) Inspection and Merchandising.

UNIT IX: NONWOVENS, TECHNICAL TEXTILES& HANDLOOM FABRICS

- i) Classification of Nonwovens - Mechanical, Thermal and Chemical bonded fabrics
- ii) Technical Textiles- Belts, Tyre-cords, Coated abrasives, Airbags, Flame Resistant fabrics, Ballistic protective fabrics, Geotextiles, Medical Textiles.
- iii) Quality Particulars of handloom fabrics – Sarees, dhotis, angavastrams, bedsheets, towels, lungies, fabrics reserved for exclusive production on handlooms.
- iv) Traditional handloom Saris – Banaras, Kanchipuram, Jamdhani, Paithani, Chanderi, Patola, Sungudi, Ikats of Andhra Pradesh and Odisha.

UNIT X: TEXTILE MILL MANAGEMENT

- i) Plant location, lay out, material handling in textile mills
- ii) Selection and balancing of preparatory machines and looms
- iii) Costing – Elements, Balance sheet, Profit & Loss Account
- iv) Production, Planning & Control.
- v) Total Quality Management, Management Information System.
- vi) Human Resources management – Selection, recruitment, training, Industrial relations and Labour laws
- vii) Role of BIS, AEPC, HEPC, IIHT, WSC, Textile Committee, Textile Commissioner Office.
- viii) New Textile Policy.
- ix) Pollution Control: Types - Air, Water, Noise; Characteristics of Effluent and Effluent treatment of Wet Processing industry
- x) Energy audit and conservation

7. INSTRUMENTATION ENGINEERING (Diploma Standard)

CODE: 448

UNIT I: BASICS OF INSTRUMENTATION

Fundamental of Instruments - Measurement, Instruments – Instrumentation System, Standards, Errors, Static analysis, Static Characteristics, Dynamic Characteristics – Electrical Transducers & mechanical Transducers – Sensors – Pressure, proximity, Displacement, Hall effect, optical sensors and Bio sensors.

UNIT II: BASICS ELECTRICAL AND ELECTRONICS

DC Circuits - Voltage, current, Resistance, Resistance in series, Resistance in parallel, Power, Energy, Ohm's Law, Kirchhoff's Laws – Network theorems – AC Circuits – Transformers – D.C Generators – D.C Motors – Single phase induction motors and Stepper motor. Semiconductors - PN junction Diode - Zener diode - Rectifiers - Half wave, full wave and Bridge rectifiers – Filters - Bipolar junction Transistors (BJT) - Biasing configuration - RC coupled amplifier - Field effect Transistors (FET) - Transistor oscillators - LDR, LED, LCD, Opto coupler, Solar cell, Photo diode, Photo transistor.

UNIT III: ANALOG AND DIGITAL ELECTRONICS

Number system – Boolean algebra – De-Morgan's theorems – Logic gates – symbols and truth tables – Combinational Circuits – Half & Full adder, Half & Full Subtractor circuits, Encoder and decoder, Multiplexer, De-multiplexer, Parity checker and generator – Sequential Circuits – Flip flops, Counters, Shift registers. 2 Operational Amplifier – IC 741 – Basic linear Circuits - Op-amp applications – A/D converters and D/A converters – IC 555 timer & its applications.

UNIT IV: MEASUREMENT OF PROCESS VARIABLES

Measurement of temperature – Mechanical methods, Electrical methods – High temperature

measurements – Measurement of Pressure - Mechanical methods, Electrical methods – Pressure Calibration - Measurement of Flow - Mechanical methods & Electrical methods – Measurement of level, Humidity & moisture (Electrical methods only).

UNIT V: MEASUREMENTS AND INSTRUMENTS

Measuring instruments – PMMC, MI instruments, Galvanometer, Ammeter, Voltmeter - Range extension of Ammeter and Voltmeter – Bridges – AC and DC Bridges - Digital Instruments – Digital Voltmeter, Digital Multimeter, Digital frequency meter, Digital Tachometer & Digital storage CRO. CRO & CRO probes, Applications of CRO – Function Generator. Types of recorder - Potential transformer & Current transformer - Fixed & Variable power supply.

UNIT VI: PROCESS CONTROL INSTRUMENTATION

Process types, Variables, Automatic process control system, Set point, Error, Self regulation - Controller modes - electronic controller & Pneumatic controller, Tuning of controller – Types, Criteria, Methods of Open & closed loop response - Signal convertors – Actuators - control valve characteristic, Types of control valve, Effects – methods of complex control system – Feed back, Feed forward, Ratio, Cascade, Direct digital control system, Computer control system and Distributer control system – Introduction of P & ID diagrams.

UNIT VII: CONTROL SYSTEM

Basics of control system, Laplace transform, Transfer function, Rules for Block diagram reduction, Signal flow graph – Time response – Standard Test signals – Types of system – I order system, II order system (Undamped & Critical damped) – Steady state error, Static error constants, Frequency response of Linear system – Frequency Domain specifications (Definitions only) – Stability - Absolute stability and relative stability.

UNIT VIII: INDUSTRIAL POWER ELECTRONICS

Thyristor family – SCR, IGBT, MOSFET & GTO – Trigger circuits – Commutation (single phase & three phase) – Convertors – Choppers – Inverters – Application – SMPS, UPS – AC Voltage Regulators.

UNIT IX: INDUSTRIAL AUTOMATION & DRIVES

Industrial drives – Electric drives – Stepper motor – Angle, Slewing rate, closed loop control of stepper motor - logic sequencer, optical encoder. Servo motor –Speed control of induction motor. Pneumatic & Hydraulic system – Elements, Power supplies & Accumulators – Types of Pneumatic filters, Regulators, Pressure control valves, valve symbols, Single acting & double acting cylinders - Hydraulic pumps , Air Compressors. Robotics – anatomy, Classification of robots, robot drives & application of robots.

UNIT X: BIO-MEDICAL INSTRUMENTATION

Bio-electric signals – resting & acting potential, types of electrodes. Clinical Measurement – measurement of blood pressure, blood flow, respiration rate, lungs volume, heart rate, body & skin temperature.

Bio-medical recorders – ECG, EEG, EMG, ERG & audio meter. Therapeutic instruments – pace makers – defibrillators, heart lung machine – dialysis & ventilator types. Bio-telemetry system & its applications –

Patient safety from electrical equipments – Methods of accident prevention. Modern imaging techniques - Laser, X-ray, Ultrasonic, CT & MRI scanner imaging techniques.

8. MECHANICAL ENGINEERING (Diploma Standard)

CODE: 255

UNIT I: INDUSTRIAL MANAGEMENT

X and Y theories of Management, Contributions of Henry Fayol and F.W. Taylor for Management - job evaluation by Ranking method and factor comparison method - motivating techniques - fixing selling price

of a product - break even analysis for make or buy decision - sinking fund method and straight line method of calculating depreciation - ABC analysis – determination of economic order quantity – TQM – ISO standards - certification

UNIT II: INDUSTRIAL ENGINEERING

Factors influencing plant location - principles of layout - techniques used to improve layout - primary and secondary causes of an accident - personal protective devices - method study procedure - flow diagram, string diagram and two handed process chart - principles of motion economy-procedure for conducting stopwatch time study, production study and ratio delay study - objectives of preplanning, routing, scheduling, despatching and controlling - difference between inspection and quality control - types of plant maintenance – TPM

UNIT III: PRODUCTION TECHNOLOGY

Foundry - patterns - special casting techniques - welding - hot and cold working – drawing, rolling and forging - powder metallurgy - plastics - rubber - ceramics - refractories - lathe work - planner - shaper - slotter - drilling machine - milling machines - grinding machines - broaching - boring and jig boring - - Gears manufacturing practice - Heat treatment and metal finishing - press work

UNIT IV: ELECTRICAL AND ELECTRONICS ENGINEERING

Units, Ohm's law, Kirchoff's law, Faraday's law - D.C. Circuits, batteries - electro magnetism - single phase and three phase A.C. circuits - Induction motors – Electronics – diodes – resistors – capacitors – transistors – logic gates.

UNIT V: MECHANICS OF MATERIALS

Mechanical properties of metals - simple stresses and strains – modulus of elasticity - geometrical properties of sections - thin cylinders bending moment and shear force - theory of simple bending - torsion and springs - transmission of motion – gear drives and belt drives.

UNIT VI: HEAT POWER ENGINEERING

Working principle and comparison of otto and diesel cycles - construction and working of two stroke and four stroke engines - Heat balance test on I.C. engine - working principle of single and multistage compressors - Comparison of reciprocating and rotary compressors - classification of steam boilers - construction and working of steam turbines - working principle of steam power plant - Main elements of a nuclear power plant - Vapour compression cycle - factors affecting human comfort - working principle of a window air conditioner and central air conditioning system.

UNIT VII: COMPUTER APPLICATIONS

Working principle and constructional details of computer - classification of computer – Input / Output devices - flow charting – MS Office & Star Office – creating documents – presentations – sending emails.

UNIT VIII: FLUID MECHANICS AND MACHINERY

Working of differential manometer - use of venturimeter and orifice classification of mouth pieces meter - working of pelton wheel, francis turbine and kaplan turbine - construction and working principle of reciprocating pump, centrifugal pump and gear pump - quick return mechanism of shaping machine - table movement in a milling machine

UNIT IX: COMPUTER INTEGRATED MANUFACTURING

CAD – Definition – geometric modeling – wireframe, surface and solid modeling – graphic standards – GKS, IGES, PHIGS and DXF. CAM – definition – group technology – part families – parts classification and coding – CAPP – types. CNC – definition – components of CNC – ATC – CNC EDM. Part program – format – coordinate system – types of motion control – types of interpolation – G and M codes – sub program – canned cycles.

UNIT X: DESIGN OF MACHINE ELEMENTS

Factors affecting selection of material – classification of bearings – sliding contact and rolling contact

bearings – radial and thrust bearings – limits – fits – tolerance – classification of fits – cams and followers – types.

9. PHYSICAL EDUCATION (Diploma Standard)

CODE: 354

UNIT I: PRINCIPLES AND HISTORY OF PHYSICAL EDUCATION

Meaning of Physical Education, Physical Culture, Physical Training. Aim and Objectives of Physical Education. Physical Education in Ancient Greece – Sparta and Athens – Ancient and Modern Olympic Games – Asian Games. Physical Education in India – SAI, SDAT, School Level Competitions in Tamil Nadu. School games federation of India.

UNIT II: BIOLOGICAL FOUNDATIONS AND TRAINING METHODS

Biological foundation: Growth and Development – Heredity and Environment, Muscle tone, Athletic heart – Reciprocal innervations – Vital capacity – Chronological age – Physiological age – mental age. Types of Muscular Contractions. Periodisation in Training. Training Load and Components of Training Load Training methods: Types of Training - Weight training - Circuit training - Fartlek Training -Interval Training.

UNIT III: TESTS, MEASUREMENT, AND EVALUATION

Meaning of the terms: Test, Measurement, and Evaluation. Criteria for Evaluation: Validity, Reliability, Objectivity. JCR Motor Fitness test, Muscular Fitness : Kraus Weber Minimum Muscular Fitness Test, Newton Motor Ability Test, Cardio vascular test: Harvard step test, 12 minutes run/walk test. Badminton: Miller Wall Volley Test. Basketball: Johnson Basketball Test,. Hockey: Friedel Field Hockey Test. Volleyball: Russel Lange Volleyball Test, Brady Volleyball Test. Football: MC-Donald Soccer Test.

UNIT IV: ANATOMY AND PHYSIOLOGY

Cell structure and properties, Tissues, Organs, Axial and appendicular Skeleton. Classification of joints. Types of muscles. Blood, Composition of Blood, Blood groups, Functions of Blood. Structure and Functions of Heart, Structure and Functions of Lungs, Structure and function of Tongue, Teeth, and Ear. Central Nervous system- Brain - Spinal cord -Reflex action, Autonomous Nervous system Effects of exercise on the various systems of the body: Skeletal System, Muscular System, Circulatory System, Respiratory System.

UNIT V: HEALTH EDUCATION, SPORTS INJURIES AND PHYSIOTHERAPY

Meaning of Health Education – Health Services and Supervision – Nutrition and Diet, Components of Food. Infection immunity – Causes of Disease – Malaria, Small Pox, Dysentery, Mumps, Typhoid. Sports injuries – Meaning – Importance – Treatment for hock, Poisoning, Drowning, Bleeding, Fractures, Sprain, Strain, Dislocation, Fainting, Abrasion, Dog bite, First Aid Box, Cuts – Kinds of Bandage, Sun stroke-General rule for burns – Snake Bite. Physiotherapy – Definition – importance of Physiotherapy, Principles of Physiotherapy – Electro therapy – Hydro therapy –Thermo therapy, Massage – Posture – Postural Deformities.

UNIT VI: SPORTS PSYCHOLOGY AND FITNESS

Meaning of Sports Psychology and its importance. Motor Learning and motor performance. Basic consideration in Motor fitness: Body build, Mental aspects, Sense Perception: Vision, Kinesthesia, Tactile. Emotional effects: Tension, Anxiety, Stress. Theories of learning: Conditioned Response – Trial and Error – insightful. Theories of Play. Physical fitness, Reaction time, Movement time, Types and Components of Physical fitness.

UNIT VII: YOGA

Meaning and Definition of Yoga. Eight limbs of yoga: Yama – Niyama – Asana – Pranayama- Pratyahara – Dharana – Dhyana – Samadhi. International Yoga Day. Suryanamaskar. Breathing exercises and Asanas towards Promotion of Physical, Mental and Emotional Health.

UNIT VIII: METHODS AND MANAGEMENT IN PHYSICAL EDUCATION

Meaning and importance of methods in Physical Education- factors influencing methods. Presentation Techniques - Class Management - Teaching aids - various methods of Teaching - Types of Tournaments, Preparation of Fixtures for Knock out, League and Combination Tournaments. Intramurals and Extramural. Different levels of Organization schools, Colleges and Universities - Guiding principles of organization - Records and Registers - Construction and maintenance of Swimming pool and Gymnasium.

UNIT IX: RULES OF GAMES AND SPORTS

Ground making maintenance, Equipments, Duties of Officials and Rule of sports and games: Basketball, Ball Badminton, Badminton, Cricket, Football, Handball, Hockey, Kabaddi, Kho-Kho, Tennis, Table Tennis, Volleyball.

UNIT X: TRACK AND FIELD

Layout of standard track (400 meters), Method of calculating Staggers and Arch start. Relay zone marking for 4*100 and 4*400. Layout of Circle/Runway and sector for : Javelin, Shot-put, Discuss, Hammer throw, Long Jump, Triple Jump and High Jump. Measurements of Standard Athletic Equipments.

10. PRINTING TECHNOLOGY (Diploma Standard)

CODE: 248

UNIT I: Imaging Technology

Design - Concept, Typography, Graphic Design Layout - Stages in Preparing a Layout; Imposition Schemes; Book Work – Margin Calculations, Dummy. Various designing software used for Designing of Newspapers, Booklets, Magazines and Label works. Digital Pre Press - Image Acquisition - Digital Camera - Principles, Types, Resolution, Memory, Scanner Types - Flatbed and Drum, Screening Frequency, DOT Structure AM and FM Screening, File Formats - OPI, Trapping , Postscript , PDF, CIP3 – JDF; Workflow - File Preparation, Colour Management, Preflighting, Digital Imposition - RIP (Raster Image Processing), Resolution - Input, Output, Plate Setters - Types, Digital Proofing - Need, Proofing Technologies - Inkjet, Dye sublimation, Thermal Wax, Electro Photography . Inks, Dyes, Toners, Quality and Relative Merits.

UNIT II: Image Preparation

Imaging for offset process; Plate chemistry - Light source - Types – advantages, disadvantages - Desensitizing process, gum, Quality Control Aids; Computer to plate (CTP) and Computer to press systems , their architecture, type of plates used- silver halide, thermal fuse, photopolymer plates and their structures and technique of imaging - laser, UV, thermal imaging. Computer to Polyester Plate (CTPP) and technique of imaging, quality control devices. Imaging for Gravure Process: Electromechanical engraving. Laser cutting of gravure cylinders, system architecture workflow and quality control Imaging of Flexography: Plate types - Rubber and Polymer plates, production of design rolls and quality aspects. Imaging for screen printing: stencil preparation types and quality aspects.

UNIT III: Offset Printing

Sheet-fed offset: Principle, types of offset machines - single colour, multi colour, perfecting presses and small offset presses; Feeding unit; pile board, Feeder head, feed board, registering system and Control. Printing unit - Plate cylinder, blanket cylinder, Impression cylinder, inking system, dampering system drying system and delivery system. Printability and runnability problems. Web offset: Principle, web fed offset machines - In-line web offset, blanket to blanket press, stack type press, Satellite (CIC) presses; Infeed: Types of reel stands, Automatic pasters, web control devices; Printing Unit design configuration, inking and dampering system, Drying, Chilling, folding, sheeting units and mail room operation. Printing and inline Operations - Make-ready operations, multi colour printing, automatic plate fixing, computer controls in printing, automatic blanket washing devices roller washing devices, spot coating, varnishing and accessories. Print problem identification and quality control.

UNIT IV: Gravure, Flexography, Screen and Digital Printing

Gravure: Principle, Press configuration, doctor blade – types, positioning; impression rollers, inking and drying system. Proofing, feed in, feed out and converting operations. Flexography Printing: Principle, press configuration, corona treatment, Anilox roller, plate mounting, inking, drying and proofing. Feed in, feed out and converting operations. Screen printing – Screen fabrics, frames and squeegees - types; screen printing machine- types; maintenance. Digital Presses: computer to press, types, advantages and applications; Green Printing - Principles.

UNIT V: Post Press and Converting Operations

Production Flow in Print Finishing, Folding - types of fold for sheet and web, methods of feeding and delivery, cutting machine - parts, types of cutting machine, knife, mechanism and maintenance of guillotines, gathering - Principles of Gathering and types of machines, securing - Stitching, Sewing - types; Perfect binding, miscellaneous operations - Edge treatment , Case making, Embossing, Foil Stamping , Die-Cutting, Indexing, Lamination - types, Shrink Wrapping, Automation in Finishing operations; Package design - types, CAD applications in packaging, folding carton manufacturing, collapsible tubes – manufacturing and its applications.

UNIT VI: Printing and Packaging Materials

Paper - Raw materials, Manufacturing, Paper making machines, paper coatings. Paper classification and sizes. Boards: Raw materials, manufacturing, machineries, classifications and sizes. Paper and Board Properties and testing. Printing Inks - Raw Materials, Manufacturing, types of inks, ink properties and testing. Coating materials, varnish, laminating films and adhesives. Plastic in packaging - types and advantages, Flexible and Rigid Packaging - materials used, properties and its applications. Glass, wood, textile Metals - Tin, Aluminum, Steel, Foils and its applications in packaging, Label - types, Adhesives used, Closures and Sealing; Cushioning materials, Lacquers, Special Additives and Material Testing.

UNIT VII: Planning, Scheduling and Cost Estimation

Planning; Job order docket, scheduling the work, sequencing, inventory management, materials and capacity requirement. Cost Estimation - Basic concept of costing, Pricing, Estimation and Investment analysis - Cost estimation for printing materials and for different printing process in respect to various print jobs.

UNIT VIII: Printing Machinery Maintenance

Maintenance Management: Definition, Planned Maintenance and Unplanned Maintenance. Total Planned Maintenance – Safety precautions and House keeping. Preventive, Predictive scheduled maintenance Documentation and Spare parts management. Unplanned maintenance - Breakdown or emergency maintenance. Total Production Maintenance – Six. big losses, Pre press maintenance, Press maintenance, Printing and allied equipment maintenance, Electrical component maintenance, Mechanical component maintenance; Equipments and tools used in Erection and Testing. Repairs and Reconditioning of old machines.

UNIT IX: Total Quality Management in Printing

Concepts of TQM, TQM Framework, Barriers to TQM; TQM Principles - Customer focus, Customer orientation, customer satisfaction, customer complaints, customer retention; TQM Tools and Techniques – Traditional tools of quality, New management tools - Six-sigma: Quality Circles, TPM, 5s, Kaizen. Process control: Visual inspection, Quality Systems and ISO 9000, Statistical Quality Control, Control charts and wastage management. Materials, process control, ISO standards for process, Implementation and Guidelines, Quality Control Devices, Quality control aids - Offset, Flexography and Gravure.

UNIT X: Advanced Printing Technology

Digital printing Technology: Definition, Non-impact printing technology (NIP), basic principle; Electrophotography, Ionography, Thermography and Inkjet printing. Security Printing; Hologram, Lenticular printing, waterless offset printing, 3D printing, Hybrid printing and its application. E-publishing Layout and Design preparation, work flow, eBook, eJournals, eNewspaper, internet advertising and digital libraries.

11. STENOGRAPHY (Diploma Standard)

CODE: 378

UNIT I:

1. Importance of Stenography
2. Consonants
3. Grammalogues
4. Phraseography
5. Circles and Loops
6. Initial and Final Hooks

UNIT II:

1. Compound Consonants
2. The Halving Principle
3. The Doubling Principle
4. Medial Semicircle

UNIT III:

1. Prefixes and Negative words
2. Suffixes and Terminations
3. Contractions
4. Special Contractions

UNIT IV:

1. Advanced Phraseography
2. Intersections
3. Usage of Political Phrases
4. Usage of Legal Phrases

UNIT V:

1. Note-taking and Transcription
2. Legislature Reporting
3. Techniques for improving Speed

12. TOWN AND COUNTRY PLANNING (Post Diploma Standard)

CODE: 325

UNIT I: HISTORY OF HUMAN SETTLEMENTS

Early human settlements, Town building during Indus valley civilization – Town building practices during ancient Greek and Roman period – Town building practices during Medieval and Renaissance periods – Effect of Industrial Revolution on planning of cities – Planning concepts of E.Howard, Patric Geddes, C.A.Perry.

UNIT II: PLANNING PRINCIPLES

Principles of Town Planning – Green belt, Housing, Public Buildings, Recreational Spaces, Transportation, Zoning. Scope and Content of Master Plan, Land use Plan – Geographical study of Regional Landuses and distribution of Settlements – Elements of Regional planning, Regional Delineation, Rural Development.

UNIT III: STATISTICS & COMPUTER ORIENTATION

Central Tendency computation – Sampling and Diagram – Computer Aided Drawing – Computer Application in Data Analysis – Population forecasting - Use of Computers in Planning.

UNIT IV: SOCIO-ECONOMIC ASPECTS OF PLANNING

Basic concept & Scope of Study – Urbanization & Ecological theories – Social Issues in urban area – Housing Redevelopment – Citizen participation.

Economic Operation – Project Appraisal – Urbanization & National Housing policy – Economics of Urban Growth.

UNIT V: PLANNING PRACTICE

Regional Plan concepts and studies – Masterplan concept and surveys – Masterplan needs and plan formulation – Urban Renewal, Redevelopment, Rehabilitation, Conservation – New Town - Detailed Development Plan - Development Regulations.

UNIT VI: PLANNING LEGISLATION AND ADMINISTRATION

Evolution of Planning Legislation - Planning System in U.K., The Tamil Nadu Town and Country Planning Act 1971, Coastal Regulation Zone and Tamil Nadu District Municipalities Building Rules – Hill Area Conservation – Planning related Acts.

UNIT VII: ARCHITECTURE AND LANDSCAPE ARCHITECTURE

Introduction to Architecture. Principle of Aesthetics – Proportion, Scale, Balance, Rhythm, Hierarchy, Axis etc., – Study of Architectural spaces – Townscape Elements – Landscape Elements – Role of Landscape Architect and the importance of Environmental Protection – Landscaping the Public Areas, Commonly used Plants and Trees in Landscape.

UNIT VIII: TRAFFIC AND TRANSPORTATION

Transportation systems – Urban Roads Classification – Traffic Regulations - Traffic Signs and Traffic Markings – Traffic Intersections at Grade-Traffic Intersections Grade Separated Parking & Street Light Facilities, Parking Standards – Railways Airways and Waterways Terminal Facilities Location Aspects – Layouts – Urban Transportation Planning Process-Surveys and Studies – Urban Transportation Planning Process – Forecasting and Plan Formulation.

UNIT IX: PARKS, PLAY GROUNDS AND OPEN SPACES

General, Types of Recreation, Location of Urban Green Spaces, Classification of Parks, Park Design, Financing Parks, Play area and its types.

UNIT X: REMOTE SENSING

Geometry of Aerial Photographs – Image characteristics and their significance – Mapping by Manual and Mechanical Methods – Use of Satellites, Aerial Photographs, Drones in Physical Planning.

13. TRADE - BOILER ATTENDANT (CERTIFICATE COURSE)

CODE: 451

UNIT I: WATER CHARACTERISTICS

Boiler feed water - Boiler water and blow down water - Treatment of raw water (R.O water and D.M / soft water).

UNIT II: FUEL CHARACTERISTICS

Types of fuel (F.O / Bio mass / Coal / Gas) - Fuel calorific value / moisture / sulphur / ash - Air fuel ratio.

UNIT III: UNITS OF MEASUREMENT

Temperature – Pressure - Air measurement - Dryness fraction - Calorific value.

UNIT IV: BOILER MOUNTINGS

Feed check valve - Safety valve - Pressure Gauge - Water level gauge - Start-up vent - Air vent - Fusible plug - Mobery switch - Blow off valve - Man hole.

UNIT V: BOILER ACCESSORIES

Super heater - Economiser - Air pre heater - ID & FD Fans - Soot blower - Dosing system - Ash handling

system - Strainer - Oil pre heater - Steam traps.

UNIT VI: TYPES OF BOILER

Fire tube boiler - Water tube boiler - Waste heat recovery - Drum types - Combined fuel type boiler - Oil fired boiler - FBC boiler - Grate boiler - Gas fired boiler.

UNIT VII: TYPES OF STEAM & TYPES OF AIR DRAUGHT

Wet steam - Dry steam - Super-heated steam – Negative Air draught - Balanced Air draught – Positive Air draught.

UNIT VIII: BOILER ECONOMICS

Steam fuel ratio - Thermal efficiency - Thermal losses - Critical steam temperature and pressure.

UNIT IX: BOILER OPERATING PROCEDURE & INSPECTION

Start-up procedure - Shut down procedure - Monitoring parameters during operation - Period of inspection - Inspection preparedness - Hydro test procedure - Open test procedure.

UNIT X: EMERGENCY PREPAREDNESS

Tube puncture - Safety and blowdown valve leakages - Fusible plug blown - Low water level - Excess drum pressure - High flue gas temperature - Back firing - Water carryover in steam.

14. TRADE - DRAUGHTSMAN (CIVIL) (ITI Standard)

CODE: 388

UNIT I: BASIC ENGINEERING DRAWING

Engineering Drawing:

State the importance of engineering drawing, State the areas of civil engineering drawing.

List of drawing instruments, equipments and materials to be used during training:

State instruments, equipments and materials, List out instruments, equipments and materials, State the standard as per 962-1987, To use different drawing instruments, equipments and materials, Follow precautions in the use of instruments, equipments and materials.

Layout of drawing Sheet:

State the system of layout of drawing sheet, List the different layout for designated drawing sheet Explain the title block.

Folding of drawing Sheet:

State the purpose of folding a drawing sheet, Explain the method of folding for drawing sheet

UNIT II: GEOMETRICAL CONSTRUCTION:

Plane Geometrical construction:

Define the terms of most commonly used geometrical shapes

Types of Lines and Angles:

Define points and lines, State the classification of lines, State the different types of angles, Explain the method of measuring angles.

Triangles and their types:

Define triangles, Name the different types of triangles and state their properties.

Quadrilaterals and their properties:

Define a quadrilateral, Name the quadrilaterals, State the properties of quadrilaterals

Polygon and their properties:

Define Polygon, Name the Polygon in terms of the number of sides, State the properties of polygon.

UNIT III: CHAIN SURVEYING**Introduction - History and principles of chain survey and instrument & employed**

Define surveying, Explain the classification of Surveying, Narrate different methods of measurements, Express the instruments used for chain surveying.

Introduction about chain survey instruments

State the construction and uses of the chain survey instruments

Testing of metric chain (20m/30m)

State the necessity of checking the chain, State the methods of testing, List out then errors in the chain, State the limits of error in chain, Explain the adjust the chain, State Indian optical square

Measurement of distance by chain and chaining

State chaining and chaining a line, State unfolding the chain, Describe the reading the chain, State folding the chain, Calculate the errors in chaining

UNIT IV: COMPASS SURVEYING**Identification and parts of instruments in compass survey:**

State about traversing, State types of compass, Name the prismatic compass and construction, Construction of survey's compass

Determining the bearing of a given triangular plot of ABC and calculation of included angles:

Calculate angles from bearing, Calculate bearing from angles

Determining the bearing of a given pentagonal plot of ABCDE and calculation of included angles

Calculate angles from bearings for a closed traverse, Calculate bearing from angles for a closed traverse, Calculate bearing of a pentagon

Magnetic declination and local attraction

Define the dip of the Magnetic needles, State the magnetic declination and variations, Calculate true Bearing, State local attraction and its elimination, Explain about errors and limits, State the testing the prismatic compass

UNIT V: PLANE TABLE SURVEYING**Instrument used in plane table surveying:**

State plane tabling, Name the instruments and accessories used in plane tabling, State the construction and uses of instruments and accessories used in plan tabling, Explain about leveling, centering and orientation in plane tabling, Explain the methods of plain tabling

Resection method of plane table survey:

State the resection method of plane table survey

UNIT VI: LEVELLING**Types of levelling:**

Name the various types of levelling, Explain simple levelling, Explain differential levelling, Complete the

reduced levels of points.

UNIT VII: ROAD ENGINEERING - I

Introduction to road engineering:

Define road, Define highway engineering, Define necessity and characteristics of road

Technical term used in road engineering:

Define road and Total Station advantage, Define various terms used in road engineering, Describe the various advantages of road

Principle of road alignment:

Alignment of road, Express the principle of highway alignment, Explain the different survey required for alignment

Classification of roads:

Describe the different classification of roads

UNIT VIII: ROAD ENGINEERING II

Road Margins:

Define road margin, Describe the element Total Station of road margin

Camber, super elevation, sight distance and gradient:

Define camber, Explain super elevation, sight distance and express gradient

UNIT IX: TOTAL STATION

Introduction to total station:

Get introduced to the Total station, Learn the evaluation of Total station from the conventional equipment Total Station, Explain the benefit Total Station and uses of Total station

Types of total station:

Explain the advantages and disadvantages of Total station, Explain the types of Total Station, Explain the precautions to be taken while using Total Station

Measurement with total station:

Explain the equipment required for Total Station surveying, Explain the procedure of measurement with Total Station

Characteristics and features of total station:

Define the features of Total Station, State the characteristics of Total Station, Advantages and disadvantages of Total Station

Principle of EDM- Working need setting and measurement Total Station:

Define EDM, State the principle of EDM, Features of EDM

Setting and measurement Total Station:

Define distance measuring, State principal of EDM, State classification of EDM

Total station Prism- instrument error operation:

Explain Total Station prisms, Describe sources of error in EDM, EDM instrument operation, Uses of EDM

Electronic display and data recording:

Define electronic data recording, Explain field computers, Define recording module, Internal memories

Rectangular and Polar Co-ordinate system:

Illustrate rectangular and polar coordinates

UNIT X: GLOBAL POSITIONING SYSTEM**Introduction of GPS:**

Explain GPS coordinate system, Describe Geographic latitude and longitude, GPS equipment

Satellite and Conventional Geodetic system:

What is satellite system, Define Geodetic system

GPS coordinate system and component Total Station of GPS & System segment Total Station:

Explain GPS coordinate system, Describe Geographic Latitude and Longitude, Explain and describe component Total Station GPS receiver

GPS segment Total Station:

Define GPS segment

Principle of Operation of GPS and surveying with GPS:

State the Principle of Operation of GPS, Describe the role of transit in GPS

Remote sensing:

Explain Remote sensing, Distinguish between GPS, GIS and Total Station

GPS signal code - GPS basics:

Introduction to digital signal, Explain data acquisition system, Describe signal processing, Explain code and basics.

**15. TRADE – ELECTRICIAN
(ITI Standard)****CODE: 438****UNIT I: SAFETY RULES – FUNDAMENTAL OF ELECTRICITY**

Safety Rules, Hazards, Types of Fire Extinguishers, Personal Protective Equipments, Types of Wires and Joints. Soldering Methods, Ohm's Law – Simple Electrical Circuits and Problems. Kirchhoff's Law and its application – Under Ground Cables - Capacitor types Functions Grouping and uses.

UNIT II: AC CIRCUITS – CELLS AND BATTERIES – WIRING INSTALLATION

AC Circuits – Power, Energy, Power Factor in AC Single Phase Circuits, Poly phase circuit, Cells and Batteries - Basic Wiring Practice, Wiring Installation and Earthing – Types - Testing a Domestic Wiring Installation – Location of Faults, Remedies. Industrial Wiring – Isolator, Switches, Fuses, Relays, Timers and Limit Switches – Types of Circuit Breakers.

UNIT III: ILLUMINATION AND ELECTRICAL MEASURING INSTRUMENTS

Illumination – Construction Details of Various Lamps – Electrical Measuring Instruments and types - Ammeter, Voltmeter, Ohm Meter, Power Factor Meter, Frequency Meter, Multi meter, Watt Meter, Energy Meters (1 Phase and 3 Phase). Tong Tester (Clamp on Meter), Smart Meters, Automatic Meter Reading - Supply Requirements.

UNIT IV: ELECTRICAL APPLIANCES

Domestic Appliances – Concept of Neutral and Earth – Cooking Range, Induction Heater, Food Mixer – Automatic Electric Iron Box, Electric Geyser Wet Grinder, Washing Machine and Fans.

UNIT V: TRANSFORMERS

Transformer – Principle, Classification, EMF Equation, Transformer Losses. Open Circuit Test, Short Circuit Test – Efficiency – Voltage Regulation. Parallel Operation of Single Phase and Three Phase Transformers – Methods of Cooling of Transformer – Necessity of Cooling - Transformer Oil and Testing – General Maintenance of three Phase Transformer.

UNIT VI: DC MACHINES

DC Generators – Principle of Operation – Construction – Parts – Types – Characteristics – Build up of emf – Application – Losses efficiency

DC Motors – Principle of Operation – Starters – DOR – Armature reaction – Commutation – Speed Control Methods – Applications – Winding lap and Wave – Losses and efficiency – Maintenance, Service and repair.

UNIT VII: AC MACHINES

Three Phase Induction Motors – Principle of Working – Construction – Parts – Types – Squirrel Cage Induction Motor – Slip ring Induction Motor – Characteristics – Slip Vs Torque – Type of Starters – Basic Contactor Circuit – Parts and Functions.

Single Phasing Prevention – Losses and efficiency – Methods of Speed Control – Windings – Types – Concentric / Distributed – Single / double layer winding and related terms – Maintenance Service and repair – Trouble Shooting.

Single Phase Induction Motors - Working Principle – Types – Construction – Parts – Starting & running Methods – Domestic and Industrial – Applications Maintenance and Trouble Shooting

UNIT VIII: SYNCHRONOUS MACHINE

Alternators - Working Principle – Construction – Parts – Types – Relation between Poles, Speed and Frequency – Voltage Regulation – Losses and efficiency – Characteristics – Phase Sequence – Parallel Operation – Care and Maintenance.

Synchronous Motor – Working Principle – Power factor improvement.

UNIT IX: ELECTRONICS

Resistors – Colour Code, Types and Characteristics – Active and Passive Components Diodes – Rectifiers – Characteristics – Transistors, SCR, DIAC, TRIAC – Applications – Digital Electronics – Logic gates and Combinational Circuits – UPS and Invertors.

UNIT X: POWER GENERATION, TRANSMISSION AND DISTRIBUTION

Types of Power Generation –Conventional and Non-Conventional Energy Sources – Solar and Wind Energy – Solar Panels – Transmission and Distribution Network – Line Insulators – Over Head Poles – Safety Precautions and IE Rules for Service Lines – Terms related to Distribution.

16. TRADE – FITTER (ITI Standard)

CODE: 436

UNIT I: SAFETY AND ITS IMPORTANT

Safety and General Precautions in Industry/Shop floor - Personal Productive Equipments (PPE) - First Aid – Operations of Electrical Mains - Disposal of Waste Materials- Occupational Safety and Health – Safety Signs – Response to Emergencies – Importance of House Keeping – Material Handling - Lifting and Handling Loads – Moving Heavy Equipments.

UNIT II: BASIC FITTING

Linear Measurement – Base unit of linear measurement, System of units of measurement, Multiples of a Metre and their values.

Steel Rule - Purpose of steel rule, Types, precautions to be followed while using steel rule.

Marking Instruments – Feature , uses and type of Scriber , Caliper, Punches, Hammer , “V” Block , Try Square - Bevel Gauge , Bevel Protractor, Combination Set, Surface Gauge , Surface Plate , Angle Plate. Cutting Tools – Hack Saw Frames, Hacksaw Blades, Files and Special files types and specification, Cold chisel and types, Power Saws, Drilling Machines, Drilling Operations, Drills, Taps, Dies, Tap drill size and Blank Size calculation.

Grinding – Grinding Machines, Grinding Wheel Specification, Loading, Glazing, Dressing and Truing. Work holding Devices – Bench Vice, Machine Vice, Clamps and Strap.

Tool Holding Devices – Drill Chuck & Key, Tapper Sleeve & Sockets, Tap Wrench, Die Stock.

Precision Measuring Instruments – construction, Least Count, Graduation and types of Vernier Caliper, Micro Metre, Vernier Micrometer, Screw thread Micrometer, Vernier Bevel Protractor, Dial Caliper, Dial test indicator and comparator.

UNIT III: SHEET METAL WORK

Safety in sheet metal work shop - Metal sheets and their uses – Hand lever shear – Sheet metal Tools, Different shear operation - Rivet & Riveting - Solder & Soldering

UNIT IV: WELDING

Safety in welding shop - Welding Hand Tools – Gas Welding Equipments and Process – Setting of Parameter for Arc welding Machines – Oxy – Acetylene cutting Equipments. – Arc welding defects and Testing – Types of Joints – Selection and Storage of Electrodes.

UNIT V: LIMIT, FIT, TOLERANCE AND INTERCHANGEABILITY

Necessity of Interchangeability – Standard System of Limit and Fits Terminology – Fits and Classification as per Indian Standard –BIS system of Limits and Fits reading the standard chart – Hole and Shaft basis system of Limit and Fit.

UNIT VI: TURNING

Safety while working on Lathes – Lathe Main Parts – Feed & Thread cutting Mechanism – Methods of Holding Jobs – Different Lathe Operations – Lathe Tool and its Nomenclature – Tool Selection – Lathe cutting speed and Feed – Use of Cutting fluid (Coolant) and Properties.

UNIT VII: BASIC MAINTENANCE, ERECTION AND TESTING OF MACHINERIES

Total Productive Maintenance – Routine Maintenance – Break down Maintenance & Preventive Maintenance - Installation of Machinery – Foundation bolts and types – Sling Load for Shifting – Erection Tools and Techniques – Fork Lift and Pallet Truck - Lubricant and its Properties – Types of Lubrication - Different Methods of Lubrication.

Repair Technique – Power Transmission Elements and its types, application and Uses (Gear, Belt and Pulley, Coupling, Chain and Sproket, Clutches, Bearing and bearing metals – Velocity Ratio calculation in Gear and Belt and chain drive.

UNIT VIII: METALS: Metal & Non Metal

Ferrous Metal Manufacturing process and properties (Pig Iron, Cast Iron , Wrought Iron and Steel) – Non - Ferrous Metal properties and uses (Aluminium , Lead , Tin Copper , Zinc and their Alloys) – Heat Treatment – Structure of steels – Annealing – Normalizing - Hardening – Tempering – Different methods of Surface hardening - Prevention of Rust and Corrosion -Galvanizing , Electro Plating , Cladding , Metal Spraying and Cementation.

UNIT IX: ASSEMBLING

Locking Devices – Screws, Bolt and Nuts, Keys, Cotters, Split Pin, Screw Driver, Spanners, Power Tools. Gauges and Template – Radius gauge , Screw Pitch gauge , Drill Gauge , Centre gauge , Feeler gauge , Wire gauge , Telescopic gauge.

Limit Gauges – Principle of 'Go' and 'No-GO' - Plug gauge, Snap gauge, Ring gauge, Taper gauge. Sine bar and Slip gauge – Principle, uses, application and Taper calculation. Finishing Process – Lapping, Honing, Frosting and Scrapping – Application and Methods. Jig and Fixtures – Construction, Types and its accessories – Advantages and Disadvantages. Inspection – Visual inspection, Quality Standard, Quality control inspection.

UNIT X: HYDRAULICS AND PNEUMATICS

Hydraulics – Safety precautions – Symbols – Filters – Pumps – Cylinders – Flow control Valves – Tube and pipe assembly – application and common maintenance of hydraulic.

Pneumatics – Safety Precautions – Symbols – FRL Unit – Actuator – Cylinder – Types of pneumatic valve – Air compressor parts and function – Electro pneumatic system - application and common maintenance of pneumatic.

Pipe and Pipe fittings – Pipe fitting Tools, Symbols , Standard pipe fitting accessories , Pipe thread , Pipe die and Tap, Repair and maintenance of Water Tap.

17. TRADE - INSTRUMENT MECHANIC (ITI Standard)

CODE: 439

UNIT I: SAFETY & BASIC FITTING BASIC ELECTRICITY

Elementary First Aid- Basic hand tools- Precision Measuring Instruments - types & uses screw threads - Electrical components - Conductor- Semi conductor & insulators – Electrical related terms – Resistor – Types of resistor – Ohm's law, kirchoff's law, series & parallel circuit – Types of switches – Magnetism – E.M.relay Cells and Batteries – AC terms & definition – Inductors & Capacitors – RLC circuit-motors – Types of motor – DC motors - AC motors – stepper motor – Transformer – Instrument transformers.

UNIT II: ELECTRICAL MEASURING INSTRUMENTS:

Absolute & secondary instruments – Essentials of electrical measuring instruments – DC instruments – PMMC – Extension of range – Shunt & series resistance – Ohm meter, megger / insulation tester – AC instruments – Types – MI, Electro dynamometer – Watt meter - Energy meter – Frequency meter.

UNIT III: DIGITAL ELECTRONICS

Semi conductor - PN junction diode – Types- Its characteristics – Special diodes – Transistor – Types & Characteristics of CB, CE, CC configuration – FET & MOSFET, Rectifier – Half wave, Full wave & Bridge Rectifier – Filter – Types – Voltage regulator – Types – Power supply – UPS – SMPS – Inverter – Converter – Thyristor devices – SCR, TRIAC, DIAC. Oscillators – Types – Operational amplifier – Application of Op-AMP – IC 555 Application – Numbering system – Logic gates & Flip flops.

UNIT IV: MEASUREMENT OF MOTION AND PRESSURE

Basic fundamentals of measurement system – Static characteristics and Dynamic characteristics – Types of errors – Arithmetic mean and standard deviation. Stress & strain measuring instruments – Tachometer & speedometers used in instrumentation - Pressure relation with volume, temperature & flow. Units of pressure - Types of pressure - Manometer – Types of pressure sensors – Pressure switches - Transducer – Electrical transducers – Types - Low pressure gauges. And its types – Calibration – Installation & Service of pressure instruments.

UNIT V: MEASUREMENT OF FLOW

Basic properties of fluids in flow measurement – Unit of flow rate - factors affecting flow rate – Types of flow meter – Head type flow meters - variable area flow meters - quantity flow meters – mass flow meters - open channel flow meters – Positive displacement meter – Advanced flow meters – Solid flow measurement – Solid flow meters types – Calibration – Installation & service of various types of flow meters - DPT.

UNIT VI: MEASUREMENT OF LEVEL

Level measurement – Direct and indirect method of level gauges – Types of level instrument in open channels & closed channels - Level switches – Electrical type level measuring instruments – Conductivity & Capacitance level instrument solid level measurement – Sonic level detector.

UNIT VII: MEASUREMENT OF TEMPERATURE

Heat & temperature – properties – Units – types – Conversion – Primary & secondary standards – Expansion thermometers in solids, liquids and gases – temperature transmitter – Thermocouple – RTD – Thermistor – Types – Pyrometers – Radiation & optical pyrometer - Recorders - Strip chart Recorder – Circular chart recorder – Paperless recorder.

UNIT VIII: FINAL CONTROL ELEMENT

Actuators – types – Pneumatic, Hydraulic & Electrical Actuators – Control valve – Types – Flow Characteristics – Valve – Body & shapes – Control switches – Types – Capacitive inductive, proximity, Limit switches, micro & IR Switches. Controller – ON / OFF controller – Analog & Digital controller – PI, PD, PID controller – Modes of controllers – Its types PLC – I/O Device – Simple programming – PLC symbols – Basic PLC operation Digital control system HART transmitter – HART communicator - Calibration of HART devices.

UNIT IX: NETWORKING

Types of networks Used in digital instrument system – Connection - Types of cables – various networking tools – Fundamentals of SCADA and DCS – Types of communication & field instruments – Field bus – HMI, Interfacing modules, I/O modules, field bus devices basics of RTP, Ethernet, EDDL.

UNIT X: BASIC HYDRAULICS, PNEUMATICS & ANALYTICAL INSTRUMENTS

Principles of Hydraulic – Hydrostatic pressure – Pascal's law – Bernoulli's principle – Physical properties of Hydraulic fluid – Types of directional control valve – Classification – Symbols – Accessories – Principles of Pneumatics – Air Treatment – Components of Pneumatic power system - Basic analytical instruments – pH meter – conductivity meter – dissolved oxygen meter – Types of electrodes used in above meters.

18. TRADE - LAB TECHNICIAN (Diploma Standard)

CODE: 450

UNIT I: GENERAL CATEGORY

Units of Measurement and conversion

Weight – mg / gms / kg ; Volume- ml / L; Conversion of measuring units (e.g. ppm – mg and vice versa); Molarity; Normality (e.g. $V_1N_1 = V_2N_2$) ; Temperature conversion – Fahrenheit and Celsius ;Reference values

Preparations of solution for qualitative and quantitative analysis - Percentage solution – Standard solution

UNIT II: LAB SAFETY

Lab safety – Personal safety (Personal protective equipment) – Safety of environment – Safe handling of food – Acid & Alkali burns ; First aid kit contents ; Fire and other natural calamities

UNIT III: EQUIPMENTS

Instruments / Equipments for chemical analysis of Milk – Handling and calibration of Testing Equipments – Microscope – Structure of Microscope – Types of Microscope - Adjustments; Centrifuge – Principles of centrifugation – Types of Centrifuge – Techniques ; Lacto meter – Description of the instruments – Principle of measurement – Interpretation of results – Specific gravity bottles ; pH meter – Principle of measuring pH – Various methods of measurement of pH – Interpretation of pH ; Physical balance – Description and types ; Moisture balance ; Colorimeter / Semi auto analyser – Principle and measurement ; Micro meter (Screw gauge) – Measurement of thickness of package material ; Spectrophoto meter ; Micro pipettes ; Thermometer etc.,

UNIT IV: GLASSWARE & PEST CONTROL

Glass ware - Handling and calibration – Burettes – Pipettes – Volumetric flask – Measuring cylinders – Beakers– Thermometers – Lactometers – Butyrometer etc.,
Pest control – Control of rodents – Control of cockroaches, Flies and Ants
Water analysis – Chemical and Microbiological analysis of raw water, processed water and ETP water

UNIT V: DAIRY CHEMISTRY

Chemical composition of Milk & Milk Products

Physico-Chemical Analysis of Milk and Milk Products: Organoleptic Tests - Colour, Odour, Taste, pH ; Specific gravity ; Adulteration test other

Quality control: Chemical Examination of Milk - Fat by Gerber Method, SNF by Lactometer/Gravimetric method, Protein, Lactose, Titrable Acidity

UNIT VI: DAIRY BIO CHEMISTRY

Nutritional quality of Milk, Milk Proteins, Enzymes in Milk and Milk Products, Fatty acids in Milk Fat, Oxidation-reduction reactions with methylene blue; Non protein nitrogenous substance – Urea (Urease test) ; Colorimeter test for products

UNIT VII: DAIRY MICRO BIOLOGY

Microbiology of Milk & Milk Products: Morphology and classification of Dairy bacteria, Characteristics of Important Dairy microorganisms, Characteristics of Spoilage and Pathogenic micro organisms, Sources of Contamination in Milk, Hygienic Milk Production.

Microbiological Methods of Milk Testing: Qualitative & Quantitative methods of Milk testing, Dye reduction test, Direct Microscopic count, Standard Plate Count, Coliform counts in Milk, Methods for enumeration of other groups of bacteria, Enumeration of Yeast & Mould in Milk.

Equipments: Handling and calibration of testing equipments -Incubator – Hot Air Oven – Autoclave – Centrifuges – Water bath – Laminar flow – Microscope - Biosafety cabinets – ELISA – PCR – Colony counter etc., Sterilization, Disinfection of utensils, glassware, storage tanks

Lab and Environmental Safety – Preventive and safety measures for testing pathogenic and non-pathogenic organism in dairy industries –Culture media and their preparation – Psychrophilic – Mesophilic – Thermophilic organisms- Safe lab practices – Sample collection – Semi finished and finish products – Universal precautions – Personal protective equipment

Microscopy and morphology of bacteria: Identification of Microorganisms – Simple and Differential staining – Staining procedures – Antimicrobial agents – Phage typing – Serotyping

UNIT VIII: SYSTEMIC MICROBIOLOGY

Gram positive cocci – Gram negative cocci – Gram negative bacilli – Gram positive bacilli

Microbiology of Milk: Brucella – Mycobacterium tuberculosis – Mycobacterium bovis – Salmonella - Shigella - Vibrio cholera – Escherichia coli – Campylobacter – Listeria - Cryptosporidium

Fungal contaminants: Aspergillus – Mucor – Penicillium – Rhizopus

UNIT IX: MILK BORNE DISEASES

Sources of Pathogens, Terms used in Milk borne infections; Causes, Symptoms and prevention of Milk borne Diseases: Tuberculosis, Brucellosis, Diphtheria, Q-Fever, Enteroviruses, Poliomyelitis.

UNIT X: BIOMEDICAL WASTE MANAGEMENT

Segregation of waste – Waste disposal – Spillage management

19. TRADE - MECHANIC MOTOR VEHICLE (MMV) (ITI Standard)

CODE: 437

Unit I: Safety Precautions and First Aid

Importance of Safety and general Precautions to be observed in the shop. Basic first aid, safety signs. Safe handling of Fuel Spillage, Fire extinguishers and its types. Different types of fire. Safe disposal of toxic dust, Safe handling and Periodic testing of lifting equipment, Authorization of Moving & road testing vehicles. Electrical safety tips.

Unit II: Hand Tools and Measuring Instruments, Frame and Body

Marking materials, Cleaning tools, Workshop tools, Common and Special hand tools, Micrometers, Vernier calipers, Telescope gauges, Dial bore gauges, Dial indicators, Straightedge, Feeler gauge, Thread pitch gauge, Vacuum gauge, Tire pressure gauge. Drill bits, Drilling machines and holding devices, Taps and Die sets, Calculation of Tap drill sizes for metric and inch taps. Screw extractors, Hand Reamers and its types. Lapping, Lapping abrasives, Type of Laps. Fasteners.

Function of frame, Types of frame, Chassis repair and alignment, Frame maintenance, Safety standards for cars.

Unit III: Engine, Transmission system, Fuel supply system, cooling systems and lubrication system

Internal & External combustion engines, Classification of IC engines, Principle & working of IC engines. Differentiate between 2- stroke and 4 stroke, C.I engine and S.I Engine, Direct injection and indirect injection, Engine Technical terms, Engine specification, various gauges/instrument on a dash board Petrol Engine. Engine Components and materials: Cylinder head, combustion chambers, Head gaskets, Engine Valves & Valve Trains, Type of valve operating mechanism, Valve- timing diagram, Camshafts & drives, Timing belts & chains, Timing belts tensioners. Pistons, Piston rings and Piston pins. Compression ratio, Connecting rod, Crank shaft, Engine bearings, Fly wheel and vibration damper. Crank case & oil pump, Gears timing mark, Chain sprockets, Chain tensioner etc. Function of clutch & coupling units attached to flywheel. Cylinder block, Sleeves (liner). Intake & Exhaust systems and Components, Firing order of the engine.

Clutch, Gear ratios, Gearbox Automated Manual Transmission (AMT) Gearbox layout & operation, Baulk-ring synchromesh unit, Transaxle synchromesh unit drive transfer case, Freewheeling hubs, Four wheel drive differentials All-wheel drive- four wheel final drives, All-wheel drive transfer case, Transfer case differential action Automatic Transmissions - Torque converters, Planetary gears, Electronic control transmission , Propeller shaft, Universal Joint, Final drive, Differential unit, Rear axle & Front axle.

Fuel characteristics, concept of Quiet diesel technology & clean diesel technology. Diesel fuel system components – Description and function of Diesel tanks & lines, Diesel fuel filters, water separator, Lift pump, Plunger pump, Priming pump, Electronic Diesel control Electronic fuel control systems, Common Rail Diesel Injection (CRDI) system, Sensors, actuators and ECU (Electronic Control Unit) used in Diesel Engines, Gasoline Fuel Systems, Stoichiometric ratio, Air density, CNG –Gas circuit components.

Different type of cooling systems, components- Radiator, Coolant hoses, Water pump, Cooling system thermostat, Cooling fans, Temperature indicators, Radiator pressure cap, Recovery system, Thermo switch. Functions of oil, Viscosity and its grade as per SAE, Oil additives, Synthetic oils, the lubrication system, Splash system, Pressure system, Corrosion/noise reduction in the lubrication system. Lubrication system components - Description and function of Sump, Oil collection pan, Oil tank, Pickup tube, different type of Oil pump & Oil filters Oil pressure relief valve, Spurt holes & galleries, Oil indicators, Oil cooler.

Unit IV: Wheels & Tyres, Steering Systems, Suspension Systems, Braking Systems

Wheel, Tyre, Rim and its types, materials, Construction, Characteristics. Tyre sizes & designations, Tyre information, Tyre tread designs, Tyre ratings for temperature & traction. Descriptions Tire wear Patterns and causes Nitrogen v/s atmospheric air in tyres

Principles of steering, Rack-and-pinion steering system, Recirculation ball & nut steering system, Four-wheel steering systems, collapsible steering system. Steering boxes & columns, Power Assisted steering, electric power assisted steering. Wheel alignment:- Basic principles , wheel base, wheel track, king pin

inclination, Caster, Camber, Scrub radius, Toe-in & toe out, Toe-out on turns, Turning radius, Thrust angle & centre lines.

Principles of suspension, Types of suspension Independent suspension, Rear independent suspension, Rear-wheel drive independent suspension, non-independent suspension, electronically controlled air suspension (ECAS), Adaptive air suspension operation. Types of springs - Description and function of Coil springs, Leaf springs, Torsion bars, Rubber springs. Shock absorber types- Hydraulic shock absorbers, Gas-pressurized shock absorbers, Load adjustable shock absorbers, Manual adjustable-rate shock absorbers, Electronic adjustable-rate shock absorbers, Automatic load adjustable shock absorbers Front suspension types & components- Mc person Strut suspension, Short/long arm suspension, Torsion bar suspension Rear suspension types & components-Rigid axle leaf spring suspension, Rigid axle coil spring suspension, Independent type suspension, Rigid non-drive suspension.

Brake type - principles, Air brakes, Exhaust brakes, Electric brakes, Parking brakes, Engine brakes, Regenerative braking Braking system. Components brake system. Brake friction materials. Antilock braking system operation, Principles of ABS braking, CABS master cylinder, Chydraulic control unit, Wheel speed sensors, ABS with EBD electronic control unit. The construction and Operation of ABS. Braking system components.

Unit V: Diagnostic Trouble Code (DTC)

Use of scan tool and retrievals of codes. EFI sensors- Intake Temperature sensor, Mass airflow sensor, Manifold absolute pressure sensor, Air vortex sensor, Fuel system sensor, Throttle position sensor, Exhaust gas oxygen sensor, Crank angle sensor, Hall effect voltage sensor, Optical type sensors.

Unit VI: Emission Control

Vehicle emissions Standards- Euro and Bharat II, III, IV, V Sources of emission, Combustion, Combustion chamber design. Types of emissions: Characteristics and Effect of Hydrocarbons, Hydrocarbons in exhaust gases, Oxides of nitrogen, Particulates, Carbon monoxide, Carbon dioxide, Sulphur content in fuels Description of Evaporation emission control, Catalytic conversion, Closed loop, Crankcase emission control, Exhaust gas recirculation (EGR) valve, , Controlling airfuel ratios, Charcoal storage devices, Diesel particulate filter (DPF). Selective Catalytic Reduction (SCR), EGR vs SCR.

Unit VII: Battery

Magnetic effects, Heating effects, Thermoelectric energy, Thermistors, Thermo couples, Electrochemical energy, Photo-voltaic energy, Piezoelectric energy, Electromagnetic induction, Relays, Solenoids, Primary & Secondary windings, Transformers, stator and rotor coils. Basic electronics: Description of Semi conductors, Solid state devices- Diodes, Transistor, ignition systems- Distributor less ignition systems, insulated coils, Distributor less ignition system timing. Horn, Wiper, power window Power door lock, Automatic door lock, Remote keyless entry system, Antitheft system, Immobilizer system circuits and its components. Description and function of Airbags, Seatbelt, Vehicle safety systems, Crash sensors, Seat belt pre tensioners, Tire pressure monitoring systems Integrated communications, Proximity sensors

Unit VIII: Heating Ventilation Air Conditioning (HVAC)

Principles, Air-conditioning capacity, Air-conditioning refrigerant, Humidity Description and function of Fixed orifice, Control devices, Thermostatic expansion valve system, Thermal expansion valves, Air-conditioning compressors, Condensers & evaporators, Receiver drier, Lines & hoses, TX valve construction, Temperature monitoring thermostat, Refrigerants, Pressure switches, Heating elements Air-conditioning ECU, Ambient air temperature sensor, Servo motors, Electric servo motors, Automatic climate control sensors, Evaporator temperature sensor, Blower speed control, Ventilation systems

Unit IX: Basic Electrical and Electric Vehicle Technology

Electricity principles, Basic Electrical connections, Ohm's law, Voltage, Current, Resistance, Power, Energy. Voltmeter, ammeter, Ohmmeter, Multimeter, Conductors & insulators, transformer, Wires, Shielding, Length vs. resistance, Resistor ratings Fuses & circuit breakers, Ballast resistor, Stripping wire insulation, cable colour codes and sizes, Resistors in Series circuits , Parallel circuits and Series-parallel circuits, Electro static effects, Capacitors and its applications, Capacitors in series and parallel.

Description of charging circuit operation of alternators, regulator unit, ignition warning lamp troubles and

remedy in charging system. Description of starter motor circuit, Constructional details of starter motor solenoid switches, common troubles and remedy in starter circuit.

Introduction to Hybrid & Electronic vehicle, Hydrogen fuel cell vehicle, EV Terminology Comparison of Electric Vehicle with IC engine vehicle based on emissions, range, fuel type. Types of electric vehicle, BEV, HEV, PHEV and FCEV. Architecture of Electric Vehicle, working principle of fully electric vehicle, Major component, performance parameter, Basics of Motors, Selection, sizing and characteristic of Motor, calculation for motor effort, electric transmission. Principle, working and operation of propulsion system, DC Motor - Drives Armature Voltage, chopper circuit, step up, Step down chopper, control strategy, chopper amplifier. Brushless DC Motor – principle working, features, speed control system of brushless DC motor, efficiency, calculation. Battery management system

Unit X: Traffic rules:- Signals & controls. Locating vehicle information, Obtaining & interpreting scan tool data.

20. TRADE - MECHANIC REFRIGERATION AND AIR CONDITIONER (ITI Standard)

CODE: 435

UNIT I: BASIC SAFETY AND REFRIGERATION SYSTEM

General Safety precautions and first aids, Fire fighting Equipment and Electrical Safety - Different types of Fitting Hand Tools – Their use - Electrical Terms such as AC and DC supply, Voltage, Current, Resistance, Power, Energy, Frequency, Safety Precautions to be observed while working on Electricity, Conductors, Insulator Materials – Measuring Instruments such as Voltmeter, Ammeter, Ohm Meter, Watt Meter, Energy Meter and Frequency Meter – Earthing and its importance, Basic Principle of Semi-Conductors, Application of Diodes – Transistors – IC's, Soldering, Brazing, Oxy-Acetylene Welding, Basic Principles of Welding Processes commonly used, Basic Principles of Refrigeration, Working, use specification, Refrigeration Tools, Instruments and Equipment – Fundamentals Refrigeration and it's units – Thermodynamic Laws.

Science Related to Refrigeration, work, power, energy, force, heat and Temperature, Different Temperature Scales, Thermometers, Units of Heat, Sensible Heat Latent Heat, Super Heating and Sub-Cooling, Saturation Temperature, Pressure Types, Units –Type of Refrigeration System – Study the Construction and working of Vapour Compression Cycle – Low side & High Side of Vapour Compression System, COP (Coefficient of Performance), Ton of Refrigeration.

UNIT II: REFRIGERATORS AND ITS TYPES

Refrigerator (Direct cool of frost free), Function, Construction working of Single Door Direct Cool Refrigerator, Frost Free Refrigerator, Specifications, Trouble Shooting, Heat Insulation Materials, Care and Maintenance of Refrigerators, Mechanical and Electrical Components of Refrigerators.

Importance of Flushing in Evaporator, and condenser, Use of Dry Nitrogen for Flushing – Evacuation, Leak Testing, Gas Charging Method in Refrigerator.

Frost Free Refrigerator Two or Three Door Parts – Function – Electrical Accessories and its Function (Timer, Heater, Bimetal, Relay, OLP), Refrigerator Cabinet Volume Calculation).

Refrigerator Inverter Technology – Two and Three Door Construction –Working – Care and Maintenance.

UNIT III: COMPRESSOR, MOTOR AND REFRIGERANTS

Types of Compressors used in Refrigeration and Air-Conditioning, Function, Construction – Wet Compression – Oil Properties – Lubrication Methods – Applications.

AC Motors – Types – Advantages of AC Motor Over DC Motor – Starting and Running Winding – Starting Current, RSIR, CSIR, CSR and PSC Motor, Functions of Starting Relay, Capacitors, OLP.

Classification of Refrigerants – Properties of Refrigerants – Pressure and Temperature of Different Refrigerants – GWP, ODP of various Refrigerants – Properties of Insulating Materials used in Refrigeration and Air-Conditioning.

UNIT IV: CONDENSER, EXPANSION VALVE AND EVAPORATOR

Function of Condenser, Type, Liquid Receiver, Pump Down, Drier Function, Types – Expansion Valve used in Domestic Refrigeration and Air-Conditioning – Capillaries, Automatic and Thermostatic Expansion Valve and Electronic Expansion Valve, Evaporator – types, construction, working and its uses.

UNIT V: AIR-CONDITIONER AND ITS TYPES

Window Air-Conditioner, Split Air-Conditioner, Construction, Multi split AC, Inverter Split AC Working, Mechanical, Electrical Components – Types of Split Air-Conditioners – Study of Wiring Circuits – Installation and Servicing – Fault Finding – Testing Components.

UNIT VI: COMMERCIAL COMPRESSOR AND ITS TYPES

Commercial Compressor: Function, types Construction & Working Applications. Compressor Lubricant Oil, Properties types of Lubricant Methods.

UNIT VII: WATER COOLED CONDENSER, COOLING TOWER, EVAPORATOR/CHILLER AND WATER TREATMENT

Water Cooled Condenser: Types and Capacity, Construction, Working and De-Scaling Application, Evaporative Condenser – Function, Construction and Application.

Cooling Tower: Types, Construction, Capacity, Efficiency, Approach and Cooling Tower Range.

Water Treatment: Causes for Water Contamination and Water Treatment.

Evaporator and Chillers: Construction Function and Types of DX Chiller, Types of Defrost System, Water / Brine Chiller, Types of Brine used as secondary Refrigerant.

UNIT VIII: HEAT EXCHANGER, ACCUMULATOR, WATER COOLER AND DEEP FREEZER

Heat Exchanger and Accumulator: Function and Construction, Applications, Oil Separator – Function and Construction.

Water Cooler: Types, Construction and Working Principle and its Applications.

Deep Freezer: Description, Construction, Working Specifications, Care and Maintenance, Fault and Remedies.

UNIT IX: ICE CANDY PLANT, ICE PLANT AND COLD STORAGE/WALK IN COOLER

Ice Candy Plant: Function, Construction Working Principle, Capacity, Types of Compressor used.

Ice Plant: Details about Components of Ice Plant their Functioning.

Cold Storage/Walk in Cooler: Details about Components, their Functioning, Working Principle, Circuit Diagram, Capacity and types, Care and Maintenance, Food Preservation Spoiling agents, Preservation by Refrigeration System, Types of Cold Storage and its Details.

UNIT X: DIRECT AND INDIRECT AIR CONDITIONING SYSTEM, DUCT, AIR FILTER AND CONTROL SYSTEM OF AC PLANT

DUCT and Air Filters: Function, Types, Materials, and Designing DUCT, Function of Air Filter Types, Construction, Maintenance, Effect of Chocked Air Filter.

Direct Central Air Conditioning Plant: Construction and Working Principle, Types, Maintenance of Direct Air conditioning plant.

Humidification and Dehumidification method Description of AHU and FCU.

Temperature and Pressure control used in AC Plant, its Construction, Working, Safety Device and Pipe Line.

Indirect / Chiller System: Construction and Working Principles, Maintenance of Indirect / Chiller System, Air-Washers used in chilled water system.

Control System of AC Plant: Controls used in AC System, Electromechanical, Pneumatic and Electronic, Details study of Heat Load Calculation for Commercial and Industrial Buildings.

21. TRADE – SURVEYOR (ITI Standard)

CODE: 387

UNIT I: Basic Engineering Drawing

Role of Surveyor:

Know about the role of a surveyor - State the importance of survey.

Layout of drawing sheets and title block:

State the meaning of the term 'Layout' of drawing sheet - List the different layout styles of drawing sheets - Explain margin, frame, title block etc.

Free hand sketching:

State the need free hand sketching - List the situations wherein free hand sketching is useful.

Drawing equipment - Drawing board, T-Square:

State the construction and use of drawing boards and 'T' square - State the standard sizes of drawing board as per IS: 1444-1989 - State the standard sizes of 'T' square as per IS: 1360-1989 - State the construction and uses of drafting machine - Select the pencil grades for different drawing application - Select the purpose of erasing shield - State the use of set squares in drawing work.

Folding of sheets:

Explain the method of folding in different size of drawing sheets.

Lettering styles:

Recognise different lettering styles - Designate the letters and numerals as per IS norms - State standard properties for height, width and spacing of letters.

Scales:

State the necessity of scales - Explain representative fraction (RF) - List the types of scales - Explain plain, Diagonal scale, comparative scale and Vernier scale.

Dimensioning:

Explain the types of dimensioning - Explain the elements of dimensioning - Explain the methods of indicating dimensioning - Explain the arrangement of dimensioning.

Types of lines and angles:

Define points and lines - State classification of lines - State the different types of angles - Explain the method of measuring angles.

Triangles and their properties:

Define triangles - Name the different types of triangles and state their properties.

Quadrilaterals and their properties:

Define a quadrilateral - Name the quadrilaterals - State the properties of quadrilaterals.

Polygon and their properties:

Define a Polygon - Name the Polygon in terms of the number of sides - State the properties of Polygon.

UNIT II: Chain Surveying

Introduction about Surveying:

Define Surveying - State the object of surveying - State technical terms - State the classification of Surveying - State the principles of Surveying - State the work of Surveyor - State the accuracy in chain Survey - State steel band

Measurement of distance by a chain and chaining:

State the methods of determining distance - State chaining and chaining a line - State unfolding the chain - Describe the reading the chain - State folding the chain - Calculate the errors in chaining.

Introduction about chain survey instruments:

State the construction and uses of the following chain survey instruments.

Ranging:

State ranging - State the necessity of ranging - State the types of ranging - Interpret the signals surveyor and the corresponding action by assistance.

Chaining on sloping ground:

Explain the methods of changing on sloping ground - State necessity of calculating horizontal distances.

Offset and Offsetting:

State the meaning of offset and offsetting - State the classification of offsets, its limits and its definition - State the methods of taking offsets for various site conditions.

Obstacles in chain surveying:

Define obstacles - State the three types of obstacles - Calculate the obstructed distance.

Introduction used for setting out right angles:

List out the instrument used for setting out right angles - State the types of cross staff and optical square - State the construction of cross staff and optical square - Explain the principles of optical square - State the uses of cross staff and optical square.

Introduction about triangulation survey:

Define the triangulation and traverse in survey - State closed and open traversed survey - State the three types of survey lines in triangulation
Explain about field work.

Calculation of area:

Calculate the areas of an irregular field - Apply geometrical formula for calculating the area - Describe the construction and use of planimeter.

UNIT III: Compass Surveying

Identification and parts of instruments in compass survey:

State about traversing - State types of compass - Name the prismatic compass and construction - Construction of surveyor's compass

Determining the bearing of a given triangular plot ABC and calculation of included angles:

Calculate angles from bearings - Calculate bearing from angles.

Determining the bearing of a given pentagonal plot of ABCDE and calculating included angles magnetic declination and plotting of compass survey:

Calculate the angles from bearing for a closed traverse - Calculate the bearing from angles for a closed traverse - Calculate the bearing of a pentagon - Define the dip of the magnetic needles - State the magnetic declination and variations - Calculate true bearing - State local attraction and its elimination - Explain about errors and its limits - State the testing the prismatic compass.

UNIT IV: Plane Table Surveying

Setting up of plane table and methods of plane tabling:

State plane tabling - Name the instruments and accessories used in plane tabling - State the construction and uses of instruments accessories of plane tabling - Explain about the setting up of plane table over a

station - Explain about leveling, centering and orientation in plane tabling - Explain the methods of plane tabling

Methods of plane table survey:

Methods of plane table survey - Radiation methods of plane table survey
Intersection methods of plane table survey

Traversing method of plane table survey:

State traverse methods of plane table survey - Conduct traverse methods of plane table survey.

Locate and plot new building by two point and three point problem: Define about resection - State two and three point problem - Describe Lehman's rule - List out the errors in plane tabling - Describe the advantage and disadvantage

Prepare a road map for 1/2 km showing details on both sides:

Prepare a road map and locate the details on both sides

Inking, finishing, colouring and tracing of plane table map:

Explain about colouring of surveying symbols - Explain the importance of tracing - State the techniques/order of tracing a drawing - State the different types of reproduction of drawings.

Minor instruments used with or without plane tabling:

Explain about the construction and uses of Abney level, tangent clinometers, De Lisle's clinometers.

UNIT V: LEVELLING & CONTOURING

Instruments Used for Levelling:

Explain the tilting level and auto level - Explain the construction a dumpy level - Explain the classification of leveling staff.

Introduction of contouring:

Define contouring - Explain the terms in contouring - Narrate the characteristics of contour

Topography and contour:

State Topography - State contour.

Tracing of grade contour:

Trace the contour gradient for alignment of roads, railways, etc - Determine the volume of earth work and capacity of reservoir

Computation of volume:

Explain the various methods for the quantity of earth work - Compute quantity of earth work by average depth method - Compute the quantity of earth work by trapezoidal and primordial formula

UNIT VI: THEODOLITE

Introduction to theodolite:

Explain the uses of the theodolite - Explain the classify of the theodolite - Explain the designate of the theodolite

Temporary adjustment of theodolite:

Set up and perform centering of the instrument - Level up the theodolite - Eliminate parallax

Measuring horizontal angle-repetition method:

Explain the repetition method - State advantage of repetition method - State errors which are not eliminated by repetition method.

Measuring vertical angle:

Define vertical angle - Differentiate angle of elevation and angle of depression - Explain how to measure vertical angle

Deflection angle and direct angle:

State deflection angle - Differentiate right deflection angle and left deflection angle - State the direct angle - Differentiate deflection angle and direct angle

Prolonging a line:

State the method for prolonging a line - Compare the method for prolonging a line - State most suitable method for prolonging a line

Intersection of two straight lines:

Explain method one : to find intersection point of two lines - Explain method two: to find intersection point of two lines

Laying of a horizontal angle:

Explain laying of a horizontal angle by ordinary method - Explain laying of a horizontal angle by repetition method - Find equivalent linear distance for an angular value

Traverse:

State uses of traverse surveying - State types of traverse - Differentiate open end closed traverse

Traverse checking:

Explain the checks for open traverse - Explain the checks for closed traverse

Classification of traverse:

Classify traverse based on the instrument used - Explain method of traversing - Explain how to measure traverse length in theodolite traversing - Explain how to measure traverse angle in theodolite traversing

Theodolite traversing method:

State methods of theodolite surveying - Explain loose needle method - Explain fast needle method - Compare loose needle and fast needle method

Theodolite traversing method II:

Explain include angle method - Explain direct angle method - Explain deflection angle method - Explain azimuth method

Theodolite phases:

Explain theodolite traversing phases

Closing error:

Define closing error - Find magnitude and direction of closing error

Latitudes and departures:

Determine latitude - Determine departures - Balance the traverse using transit method - Balance the traverse using Bowditch's (mathematical) method

Balancing the traverse:

Explain balancing the error - Describe various mathematical and graphical methods of balancing the traverse

Omitted measurements:

Describe omitted measurements - List out and explain the classification of omitted measurement

Trigonometric leveling (indirect leveling):

State advantage of indirect leveling - Explain various cases of trigonometric leveling - deduce the reduce level using the appropriate formula

Introduction to curves:

Explain the necessity for the provision of curves on road and railway - Explain the classification of curves - Explain the different terms used in curve

Setting of horizontal curve by linear method:

Determine the elements of curve - Determine the offset from long chord - Explain the method of setting cut curve by offset from long chord

Setting out curves by angular methods:

Determine the deflection angles of chords - Narrate the procedure of setting out of simple curve by one theodolite and tape method

UNIT VII: TACHOMETRY

Methods of tachometry:

List the methods of tachometry - Explain the fixed hair method - Explain the movable hair method

Tangential method of tachometry:

Explain the tangential method of tachometry - Explain the construction of substance bar - Explain the substance method of tachometry

Triangulation:

Explain the term triangulation

UNIT VIII: MODERN SURVEYING INSTRUMENTS

Digital theodolite:

Explain the features of the digital theodolite - Explain the difference between theodolite and digital theodolite

Total Station:

Describe the features of the total station - Explain evolution of total station from the conventional equipment - Narrate the benefits of total station

Remote sensing:

Explain remote sensing and photogrammetry.

GPS:

Explain the features of global positioning system(GPS) - Narrate the use of GPS and method of surveying for accurate output - List the benefits of GPS

UNIT IX: CADD

Introduction to cad:

Explain the term CAD - Explain the use of CAD

Draw tool bar:

Explain draw commands in CAD - Explain the method of drawing geometrical shapes in CAD

Layers:

Explain the dimensioning method in CAD - Explain the use of object snap in CAD

Modifying tool bar:

List out various modifying tools in CAD - Explain the uses of modifying tools in CAD

Printing cad drawings:

Explain the steps involved in plotting in cad

UNIT X: Building & Drainage

Building Drawing:

State the requirement of a good building drawing - State the method of drawing plan, elevation and typical section - State the scales used in building drawing - State Dimensioning and printing for building drawing.

Drainage:

State drainage and surface drainage - State four shapes of surface drainage.

22. TRADE - WELDER (GAS AND ELECTRIC) (ITI Standard)

CODE: 440

UNIT I: INTRODUCTION AND DEFINITION OF WELDING

Safety Precautions SHIELDED METAL ARC WELDING (SMAW) & OXYGEN ACCETYLENE WELDING (OAW) Arc and Gas Welding Equipments, Tools and accessories - Various Welding Processes and its applications - Arc and Gas Welding terms and definitions.

UNIT II: DIFFERENT PROCESS OF METAL JOINING METHODS

Bolting, riveting, soldering, brazing, seaming etc. - Types of welding joints and its applications. Edge preparation and fit up for different thickness - Surface Cleaning - Basic electricity applicable to arc welding and related electrical terms & definitions - Heat and temperature and its terms related to welding - Principle of arc welding and characteristics of arc, Permanent and Temporary Joints.

UNIT III: SET THE OXYGEN - ACETYLENE GAS CUTTING PLANT (OAGC) AND OXYGEN - ACETYLENE WELDING (OAW)

Common gases used for Welding & Cutting, Flame temperatures and uses. - Types of Oxygen - Acetylene flame Temperature and uses - Oxygen-Acetylene Cutting Equipment principle, parameters and application.

UNIT IV: ARC WELDING POWER SOURCES

Transformer, Motor Generator Set, Rectifier and Inverter Types of Welding Machines and its Care & Maintenance - Advantages and disadvantages of A.C (Alternative Current) and D.C (Direct Current) welding machines.

UNIT V: ARC WELDING POSITIONS

As per EN & ASME Flat, horizontal, Vertical and Over head Position - Weld Slope and Rotation - Welding Symbols as per BIS & AWS - Arc length – Types - Effects of Arc Length - Polarity: Types and its applications - Weld quality Testing & inspection, Common Welding mistakes and appearance of good and defective welds - Weld gauges & its uses.

UNIT VI: GAS CYLINDERS AND REGULATORS

Calcium Carbide uses and Hazard – Acetylene Gas Properties and flash back arrestor – Oxygen Gas and its properties, uses in welding. Charging process of Oxygen and Acetylene gases – Color coding for different Gas Cylinders – Regulator – Single and Double Stage – Oxy and Acetylene Gas Welding System (Low and High Pressure) – Gas Welding Techniques – Rightward and Leftward Technique – Filler Rod – Flux – Specification and uses.

UNIT VII: SMAW DEFECTS

Arc Blow – Causes and Methods of Controlling – Distortion in Arc & Gas Welding – Pipe Welding – Types of Pipe Joints – Positions – Difference between Pipe & Plate Welding – Pipe Butt Joint - Pipe Development for Elbow, 'T' , 'Y' and Branch Joint.

UNIT VIII: ARC WELDING ELECTRODE

Types, Functions of Flux, Coating Factor, Sizes of Electrode Coding of Electrode as per BIS, AWS - Effects of moisture pick up. Storage and baking of electrodes - Special purpose electrodes and their applications. Weldability of metals, Importance of Pre heating, Post heating and maintenance of inter pass temperature.

UNIT IX: TESTING WELDED JOINTS BY DIFFERENT METHOD OF TESTING

Destructive Test - Nick Break - Free Bend – Tensile – Non Destructive Test - Dye Penetration - Magnetic Particle – X Ray – Gamma Ray.

UNIT X: GAS TUNGSTEN ARC WELDING (GTAW) & GAS METAL ARC WELDING (GMAW) (CO₂) WELDING PROCESS

Brief Description - AC and DC Welding, Equipments, Polarities and applications. Various Welding Process (**GTAW and GMAW (CO₂)**) - Power sources for **GTAW** - AC [Alternative Current] & DC [Direct Current] - Tungsten electrodes - Types & Sizes - GTAW and GMAW Torches - Types, Parts and their functions -

GTAW filler rods and selection Criteria - GMAW - Wire Feed System – Shielding Gases (Argon, CO₂) - **Advanced Welding Process** - Submerged Welding -Thermit Welding - Resistance Welding (Spot, Seam, Projection) - Friction Welding (Flash Butt) – Plasma Arc Welding and Cutting - Plastic Welding (Polypropylene(PP), Polyethylene (PE), Polyvinylchloride(PVC) - Induction Welding.

Workshop Calculation and Science : Unit, Fraction – Square root, Ratio and Proportions, Percentage – Material Science – Mass, Weight, Volume and Density – Heat & Temperature and Pressure – Basic Electricity – Mensuration – Trigonometry.

Engineering Drawing: Introduction – Drawing Instrument – Free Hand Drawing - Geometrical - Hand Tools, Measuring Tools – Fabrication Drawing, Sectional View of Different Types of Welding Joints and Pipe Joints – Symbols used in related Trades – Reading of Job Drawing of related Trades.

Annexure IV

Instructions to be followed by candidates while appearing for written examinations

1. General Instructions

1.1. Candidates shall present themselves at the examination venue with the memorandum of admission (hall ticket) downloaded from the Commission's website, failing which, they shall not be allowed to write the examination. Candidates shall also bring with them, a photocopy of their Aadhaar card / Passport / Driving Licence / Permanent Account Number (PAN) card / Voter ID card.

1.2. Candidates must appear for the examination at the venue they have been allotted, as mentioned in the memorandum of admission (hall ticket). Change of venue will not be permitted. No candidate, without prior approval, shall be allowed to appear for the examination at a venue other than the one originally allotted.

1.3. Candidates may be subjected to frisking at the examination venue, if required, with the assistance of male / female police personnel or any authorized persons, as the case may be.

1.4. Candidates are advised, in their own interest, not to bring any of the banned items including mobile phones to the venue of the examination, as arrangements for safekeeping of the same cannot be assured.

1.5. Parents and others who accompany the candidates will not be permitted inside the examination venue.

1.6. If the photograph of the candidate in the memorandum of admission (hall ticket) is not printed or not clear or does not match with candidate's appearance, he / she should furnish a separate photograph affixed on a plain paper, along with his name, address, register number and signature along with a copy of the memorandum of admission (hall ticket) and a copy of Aadhaar card / Passport / Driving License / Permanent Account Number (PAN) card / Voter ID card, to the Chief Invigilator, who shall countersign it.

1.7. The ID proof in original, should also be shown to the room invigilator for verification. The room invigilator upon verification of the identity of the candidate, shall obtain an undertaking as to the genuineness of the candidate and to the effect that he / she is aware that he / she is liable to any criminal / penal action initiated by the Commission, if the information furnished is found to be incorrect at a later date. The undertaking shall then be handed over to the Chief Invigilator.

1.8. In order to facilitate verification of the identity of the candidates and explanation of the procedures pertaining to the examination, the candidates shall present themselves at the examination venue one hour before the time scheduled for the commencement of the examination.

1.9. All gates serving as entry into the examination venue shall be closed thirty minutes before the commencement of the examination and no one shall be allowed into the venue thereafter. (e.g., in case of forenoon session, for an examination scheduled to commence at 09.30 am, the candidates should present themselves at 09.00 am in the examination venue. In case of afternoon session, for an examination scheduled to commence at 02.00 pm, the candidates should present themselves at 01.30 pm. After that no candidate shall be permitted to enter the premises of the examination venue).

1.10. In case of examinations to be held in both forenoon and afternoon sessions, the reporting time for the afternoon session shall also be thirty minutes before the commencement of the examination and no one shall be allowed into the venue thereafter.

1.11. In case of extraordinary circumstances, like pandemic conditions, etc., the procedures / precautions prescribed (e.g., use of sanitizer and face mask, practicing social distancing) shall be adhered to.

1.12. Candidates must show the memorandum of admission (hall ticket) to the Invigilator / Chief Invigilator / inspection authorities / any authorized persons of the examination hall, on demand, for verification.

1.13. Candidates must ensure that the Room Invigilator signs in the memorandum of admission (hall ticket). The memorandum of admission should be preserved carefully and retained permanently. The memorandum of admission should be produced if shortlisted for the next stage of selection / whenever sought for by the Commission.

1.14 The memorandum of admission may also be photo copied, as a precaution, after the exam is over.

1.15. No duplicate memorandum of admission (hall ticket) will be issued later.

1.16. Candidates should maintain strict discipline not only in the examination room, but also inside the campus of the examination venue. Candidates found smoking / in toxicated, or found to have entered into a quarrel of any kind, or to have misbehaved with the Chief Invigilator or with the inspection authorities or with the invigilator or with any other candidate either in the examination hall or inside the campus of the examination venue, either before, during or after the examination, are liable to invalidation of answer sheet and debarment for any period the Commission may deem fit, as well as appropriate criminal action.

1.17. Water, tea, coffee, snacks, soft drinks, etc., will not be allowed inside the examination venue.

1.18. Candidates suffering from serious health issues, may, with the consent of the Chief Invigilator, deposit medication or other medical requirements on the room invigilator's table for use if needed.

1.19. An alarm bell shall be sounded in respect of each of the following activities in order to alert the candidates. The room invigilators shall make appropriate announcements as and when required.

Event	Timeline	Duration of Bell
Before Commencement of Examination		
Objective type Examination: Distribution of OMR Answer Sheets Distribution of Question Booklets	30 minutes before	Short Bell (2 seconds)
	15 minutes before	Short Bell (2 seconds)
At the Start and During the Examination		
Commencement of the Examination	At the Designated Time	Long Bell (5 seconds)
During the Examination	Every One Hour	Short Bell (2 seconds)
Before Conclusion of the Examination	10 minutes before conclusion	Short Bell (2 seconds)
At the Conclusion and After the Examination		
Conclusion of the Examination	At the Designated Time	Long Bell (5 seconds)
After Conclusion of the Examination	15 minutes after	Long Bell (5 seconds)

1.20. The candidates shall compulsorily be seated in the examination room thirty minutes before the time scheduled for the commencement of the examination.

1.21. Candidates must sit in the place allotted to them after checking the name, register number and photo as pasted on the table.

1.22. Candidates must follow the instructions from the invigilators regarding filling up of OMR answer sheets.

2. Objective Type Examination

2.1. Candidates must carry only black ball point pen, a photocopy of any one proof of ID, as specified and memorandum of admission (hall ticket) inside the examination room. Other materials are not allowed.

2.2. The OMR answer sheet as well as instructions regarding filling up of the same, shall be given thirty minutes before the time scheduled for the commencement of the objective type examination.

2.3. Pre-printed personalized OMR answer sheets containing photograph, name, register number, subject and examination centre and venue, date and session as mentioned in the memorandum of admission (hall ticket) will be supplied in the examination room. Before using the OMR answer sheet, the photograph and the details printed on it shall be verified by the candidates. It shall be ensured that the OMR answer sheet pertains to the candidate only. If any of the details are found to be incorrect or defective in any way, it should be immediately reported to the room invigilator for replacement. No OMR answer sheet will be replaced after use.

2.4. Candidates shall shade all fields of the OMR answer sheet, including the particulars required as well as answers, as per the correct method specified in page 2 of the OMR answer sheet.

2.5. Candidates shall affix their signature at the two designated places in the answer sheet. One signature shall be affixed after having read the instructions therein, before the commencement of the examination and the other signature shall be affixed, after the conclusion of the examination.

2.6. Candidates shall affix his/her left hand thumb impression in the appropriate box provided in the answer paper, after the examination is over.

2.7. Candidates will be supplied with the question booklet fifteen minutes before commencement of the examination.

2.8. Candidates must not tick mark / mark the answers in the question booklet. Failure to comply with this instruction will result in rejection of candidature.

2.9. Before writing and shading the Question Booklet Number in the OMR answer sheet, the candidate shall verify whether all the questions are printed without any omission. In case any defect is found, it shall immediately be reported to the Room Invigilator and a replacement shall be obtained which is complete in all aspects. Correct Question Booklet Number which is used by the candidate shall be written in the OMR answer sheet. If any defect is noticed in the question booklet or OMR answer sheet after the commencement of the examination, it will not be replaced.

2.10. After checking the OMR answer sheet and the question booklet for discrepancies, candidates must sign in the attendance sheet, after verifying his name and register number therein, duly mentioning the question booklet number.

2.11. The candidates must write and shade the Question Booklet Number correctly in the bubbles provided in the OMR answer sheet. The OMR answer sheets will be evaluated based on the Question Booklet Number shaded by the candidates in the bubbles.

2.12. The correct method of shading Question Booklet Number is illustrated below. For example, if the Question Booklet Number is 27430896:

SECTION - II / பித்திரம்-II

CANDIDATE TO FILL THIS AREA FIRST
Write your Booklet series and shade the
Circle with Blue or Black Ballpoint Pen only.

2	7	4	3	0	8	9	6
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

2.13. If the Question Booklet Number shaded by the candidate is not read by the OMR scanner, which may be due to improper or absence of shading of Question Booklet Number by the candidates, such answer sheets shall not be subjected to evaluation. Therefore, the said answer sheets shall be invalidated.

2.14. Candidates must shade only one of the answer bubbles in the OMR answer sheet, for each question. In case more than one bubble is shaded for a particular question, that answer shall not be evaluated.

2.15. There shall be no question for which none of the answer bubbles remains unshaded. In case none of the answer bubbles is shaded, for any question(s), the answer sheet shall be invalidated. Option [E] should be shaded if the answer is not known to the candidate. The total number of [A]s, [B]s, [C]s, [D]s and [E]s shaded as answers should be written in the boxes and the corresponding bubbles should be shaded by the candidates against Section III of Part II of the OMR answer sheet. The total number of [A]s + [B]s + [C]s + [D]s + [E]s shaded should be equal to the total number of questions printed in the question booklet.

2.16. The correct method of writing & shading in section – III (a) & section III (b) of the Part – II of OMR Answer Sheet is illustrated below:

For eg., 36 [A]s are shaded as answers in Response portion, then 036 shall be written in the boxes provided in Section – III (a) and the corresponding bubbles 0,3 and 6 should be shaded in Section – III (b) as illustrated below:

A

0	3	6
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9

2.17. The room invigilator shall fill in Section IV of Part II, the number of As, Bs, Cs, Ds and Es, as shaded by the candidate in Section III (b) of the OMR answer sheet. Both the invigilator and the candidate must sign below this entry after the examination is over.

2.18. Fifteen minutes extra time shall be given after the examination exclusively for this activity.

2.19. Only upon completion of these procedures, candidates shall be permitted to leave the examination room.

2.20. The video regarding the instructions to candidates appearing for the objective type examinations is available in <https://www.tnpsc.gov.in/English/omr-guidelines.html>

3. Computer Based Test (CBT) Examination

3.1. The Registration for the examination shall start one hour before the time scheduled for the commencement of the examination. Further, the candidates should present themselves at the examination venue 30 minutes before the time scheduled for the commencement of examination and no one shall be allowed into the venue thereafter.

3.2. Each candidate will be assigned a Computer to take up the examination.

3.3. No computer knowledge is required to take up the Computer Based Test. Knowledge in Mouse operation would suffice to take up the Computer Based Test.

3.4. Candidates will be provided with a user name and pass word to login the system.

3.5. Use the key board only to key-in the Register Number, User id (registration id) and password.

3.6. Necessary instructions will be displayed on the screen. Kindly read all the instructions carefully and follow the instructions without fail.

3.7. In case of doubt in the questions and answers, English version is the final.

3.8. In Computer Based Test, questions with five options each will be displayed in the computer screen.

3.9. The Question and optional answers will be shuffled randomly and displayed to the candidate.

3.10. Candidates will be provided with a paper for doing rough work. After closure of the examination, rough sheet will be collected.

3.11. Candidate has to click the best answer to the question. Candidates can proceed to the next question by clicking next button or previous question by clicking previous button.

3.12. Candidate can use only the mouse to select the correct answers and proceed with answering the questions.

3.13. Candidates can recheck his / her answers and if he / she feels to correct the answers, it can be done at any time before the closure of examination. They can skip the questions also, if they desire so.

3.14. Candidate can submit their answers at any time during the examination.

3.15. If he/she wants to close the examination, he/ she shall remain in these at till the completion of the scheduled time of examination.

3.16. Once the entire answers are submitted, the candidates have no option to proceed further.

3.17. If the candidates fail to submit their answers, the system will automatically submit the answers to the server, at the closure of the examination.

3.18. The question and answers can be zoomed to the required level for the candidates with visual impairment.

3.19. Candidates have to sign the attendance sheet and affix thumb impression for verification of his / her identity.

3.20. All the activities of the candidates with the mouse will be recorded in the server and a log file will be created for future reference.

3.21. The Examination Hall will be under camera surveillance.

3.22. To acquaint with the operation of Mouse and the CBT, the candidates can take up the mock test available in the Commission's website (www.tnpsc.gov.in) and they can practice the usage of mouse in the mock test. Mock test is similar to the CBT to be held on the day of examination. In the Mock test, all the steps are given similar to the CBT. Candidates can practice the mock test as many times as he/ she likes.


3.23. Answer sheet answered other than the subject opted by the candidate in the online application / specified in the Hall Ticket will be invalidated.

3.24. One question will be displayed on the screen at a time

3.25. Time available for the candidate to complete the examination will be displayed through a countdown timer in the top right-hand corner of the screen. It will display the remaining time as Time Left. (For example: if duration of examination is 3 hours, at the beginning of exam, timer will show 180 minutes and for Differently Abled candidates with scribe / without scribe 240 minutes, which will reduce gradually with passage of time). When the timer reaches zero, the examination will end by itself and the examination will be submitted by the system automatically.

3.26. Question Number Box: 1.Question Number Box displayed on the right side of the screen will show the status of each question using one of the following symbols:

 1 You have not visited the question yet.

 2 You have not answered the question.



 3 You have answered the question.

 4 You have NOT answered the question, but have marked the question for review.

 5 You have answered the question and marked for review. This will be considered for evaluation.

The 'Marked for Review' status for a question simply indicates that you would like to look at that question again.

You can click on the ">" arrow which appears to the left of question number box to minimize the question number box. This will enable you to view the question on a bigger area of the screen. To view the question number box again, you can click on "<" arrow which appears on the right side of the screen.

You can click on  to navigate to the bottom and  to navigate to the top of the question area, without scrolling.

- 3.27. The summary of number of questions answered, not answered, not visited, marked for review and answered and marked for review will be displayed above the question number box.
- 3.28. The questions will appear on the screen in ascending order, which can be answered one by one.
- 3.29. To select your answer of a question, click on the button of one of the options.
- 3.30. Click on Save and Next button after answering every question to save your answer. Otherwise your answer will not be saved.
- 3.31. To deselect your chosen answer, click on the button of the chosen option again or click on the Clear Response button.
- 3.32. Instruction for enlarging images, to view the image provided in the question in a bigger size, click on the image and rotate the scrolling wheel on the mouse.
- 3.33. Any attempt of malpractice found, will render you liable to such penal action as the Commission may decide.

4. Other Instructions

- 4.1. Borrowing of any material, instruments from other candidates is strictly prohibited. Candidates shall use only their own pens and specifically permitted material.
- 4.2. Candidates shall not be allowed to exceed the time allotted for answering the paper, for any reason.
- 4.3. Candidates are allowed to take with them the question booklet, in case of objective examination, only after the exam is over.
- 4.4. Tentative answer keys will be hosted in the Commission's website within 15 working days from the date of conduct of objective type examination. Candidates can challenge the tentative answer keys of the objective type examination through the 'Answer Key Challenge' window available in the Commission's website [Results → Answer Keys]. Representations, if any, challenging the tentative answer keys shall be submitted only through online mode within seven days from the date of publication of tentative answer keys. Representations received by post or e-mail will receive no attention.
- 4.5. Detailed instructions, procedures to challenge the tentative answer keys have been made available in the Commission's website. Representations made online/offline after the closure of the window will also receive no attention.
- 4.6. The challenges submitted on time, through the online mode, shall be referred to a committee comprising of experts in each subject. The decision on the final answer key shall be made, based on the recommendations of the expert committee and paper evaluation shall commence thereafter.
- 4.7. The Commission shall not publish the final answer key until the completion of the entire selection process.
- 4.8. Requests from candidates for furnishing of their marks or answer paper copy before the completion of the entire selection process, will not be entertained by the Commission.
- 4.9. After conclusion of the entire selection process, copies of OMR answer sheet shall be made available to the candidates on the Commission's website. On requisite payment, the candidates can download the answer papers.

4.10. After conclusion of the entire selection process, relevant particulars of all candidates who had applied for recruitment to the post shall be made available on the Commission's website.

5. Special Instructions for Persons with Benchmark Disabilities, Usage of scribes

5.1. Candidates with benchmark disability, shall be permitted to utilize the services of a scribe upon making such request in the online application subject to the following conditions. Request for scribe made after the submission of application or on the date of examination will receive no attention.

5.1.1. Candidate with benchmark disability in the category of blindness, locomotor disability (both arm affected) and cerebral palsy the facility of scribe shall be given.

5.1.2. In case of other category of disability, the provision of scribe can be allowed on production of a certificate from the Chief Medical Officer / Civil Surgeon / Medical Superintendent of a Government Health care institution if so desired by that candidate. The format of the certificate is given below:

Certificate

This is certify that I have examined Mr/Ms/Mrs. _____
_____ (Name of the candidate with disability) a person with
_____ (Nature and percentage of disability as
mentioned in the certificate of disability), S/o/D/o

_____ A resident of
_____ (Village / District / State and to state that He/She has physical
limitation which hampers his / her writing capabilities owing to his / her disability.

Due to the above mentioned disability following concession may be given:-

1. Exemption from Tamil / Second Language.
2. Extra ____ hours for writing theory exam.
3. Allocation of a scribe.
4. Over looking spelling mistakes and grammatical errors.
5. Using calculator/assistive devices
6. _____ (Any other assistive devices or concessions).

*strike out the non applicable.

Signature

(Name of Government Hospital/ Civil Surgeon/ Medical Superintendent/ Signature of the notified Medical Authority of a Government Health Care Institution)

Name & Designation

Name of Government Hospital/ Health Care Centre/ The notified Medical Authority

Place:

Date:

Signature / Thumb impression of the Differently Abled Person

Note:

Certificate should be given by a specialist of the relevant stream / disability
(e.g. Visual Impairment–Ophthalmologist, Locomotor disability–Orthopedic Specialist / PMR etc.,)

(Photo of the
Differently Abled
Person and Stamp
to be fixed here)

5.1.3. The Commission will arrange for scribes and the fee amount to be paid to the scribes will be met by the Commission. Candidates availing of the services of the scribes need not pay any fee to them.

5.2. All candidates with benchmark disability, availing of the services of the scribes while appearing for the written examination will be seated in a separate room in the ground floor, in close vicinity to the Chief Invigilator's control room and under the close supervision of the Chief Invigilator.

5.3. Candidates with Benchmark disability must affix their signature and left hand thumb impression in the space provided in the answer sheets, if possible.

5.4. Visually disabled / orthopedically disabled candidates who have been permitted to use scribe facility, who are unable to affix their signature, in part I of OMR answer sheet may affix their left hand thumb impression alone.

5.5. Candidates who are unable to use their left hand, must affix right hand thumb impression.

5.6. Candidates who are unable to use both hands, may leave the signature and thumb impression columns blank.

5.7. Compensatory time of not less than 20 minutes per hour of examination will be allowed to candidates with benchmark disability, who have physical limitation to write including that of speed and who are utilizing the services of a scribe.

5.8. All candidates with disability who have physical limitation with regard to writing including that of speed and not availing the services of a scribe will be allowed additional time of a minimum of one hour for an examination of three hours duration which could further be increased on a case-to-case basis.

5.9. All persons with benchmark disability, who are unable to climb the staircase, will be allowed to write the examination in a room in the ground floor, in close vicinity to the Chief Invigilators control room.

6. Penalty for Violation of Commission's Instructions

The answer sheets of the candidate will be invalidated / marks deducted / criminal action initiated / and debarment imposed for the following violations:

6.1. Invalidation of Answer Sheet (Objective Type)

6.1.1. Usage of any pen other than black ball point pen.

6.1.2. Usage of pencil.

6.1.3. Answered in a subject other than the one opted for in the online application / specified in the memorandum of admission (hall ticket).

6.1.4. In case of non-personalized OMR answer sheet, if the register number is not written in the space provided for it.

6.1.5. The answers are not shaded as per the correct method illustrated on page 2 of the OMR answer sheet.

6.1.6. If the Barcode / OMR-track printed on page 1 of the OMR answer sheet is tampered with.

6.1.7. OMR answer sheet is not signed by the candidate at all required places.

6.1.8. Required particulars in the OMR answer sheet have not been filled up.

6.1.9. Wrongly seated in the place of other candidates and/or written the examination using the OMR answer sheet of other candidates.

6.1.10. If any irrelevant / impertinent remarks amounting to disclosure of identity is found in the OMR answer sheet upon physical verification.

6.1.11. If the bubbles for Question Booklet Number are not shaded.

6.1.12. Even if one or more bubble / bubbles of Question Booklet Number are left blank (not shaded) in the space provided in Section-II of part-II of OMR answer sheet.

6.1.13. If more than one bubble / bubbles is shaded in space provided for bubbles of Question Booklet Number in each column (Multiple Shading)

6.1.14. Question Booklet Number shaded in bubbles provided for Question Booklet Number by the candidate is out of question booklet number series printed [Not in range of QB series]

6.1.15. If either Part-I or Part-II or both of OMR Answer Sheet is crossed out. For Example: OMR Sheet



6.1.16. In cases, where a candidate attends two or more subject papers and if one of the subject papers is invalidated for having violated the Commission's instructions to applicants and if the General Studies paper is not invalidated, the remaining subject papers will be evaluated. However, if the General Studies paper is invalidated for having violated the Commission's instructions to applicants, all the subject papers attended will not be evaluated.

6.1.17. In cases, where a candidate is issued with Memorandum of admission (hall ticket) for attending two or more subject papers and if he/she absents himself/herself for one of the subject papers but attends the remaining subject papers and also General Studies paper, all the papers attended will be evaluated. However, if the candidate absents himself/herself for the General Studies paper, all the papers attended will not be evaluated.

6.2. Deduction of Marks (Objective Type)

6.2.1. In case of non-personalised OMR answer sheet, two marks will be deducted for writing the register number incorrectly.

6.2.2. In case number of [As], [Bs], [Cs], [Ds] and [Es] count wrongly mentioned / not shaded / incorrectly shaded by the candidate in the Part – II of the OMR Answer Sheet, two marks will be deducted from the total marks obtained by the candidate.

6.2.3. None of the answer bubbles is shaded for even one question by the candidate, two marks will be deducted from the total marks obtained by the candidate.

6.2.4. In case of absence of candidates left thumb impression in answered portion of the OMR answer sheet, two marks will be deducted from the total marks obtained by the candidate.

6.2.5. If the Question Booklet Number is not written or partially written in the space provided, five marks will be deducted from the total marks obtained by the candidates.

6.3. Criminal Action: Criminal action will be initiated against the candidates for the following reasons

6.3.1. Misbehaviour and indiscipline in the examination hall. Candidates should maintain strict discipline

not only in the examination room, but also inside the campus of the examination venue. Candidates found smoking / intoxicated, or found to have entered into a quarrel of any kind, or to have misbehaved with the Chief Invigilator or with the inspection authorities or with the invigilator or with any other candidate either in the examination hall or inside the campus of the examination venue, either before, during or after the examination, are liable to invalidation of Answer Sheet and debarment for any period the Commission may deem fit, as well as appropriate criminal action.

6.3.2. Indulging in any type of malpractice, including impersonation and resorting to unfair means within the examination hall or outside will lead to debarment for any period deemed fit by the Commission, besides initiation of criminal action.

6.4. Invalidation of Answer Sheet as well as debarment for such period as the Commission may deem fit will be imposed on candidates resorting to any kind of irregularity or malpractice within / outside the examination hall including:

- a. Consulting with / copying from another candidate in the examination hall.
- b. Permitting others to copy from his/her Answer Sheet.
- c. Copying from books or notes which are printed/ typewritten/ handwritten.
- d. Seeking the help / assistance of any official / hall supervisor in answering questions in examination hall.
- e. Approaching or attempting to approach an examiner or getting other people to approach an examiner on his behalf.
- f. Possession of electronic devices such as cellular phones, watches and rings with in-built memory notes, Bluetooth devices, communication chip, other electronic devices and non-electronic devices such as P&G design data book, books, notes, handbags, other non- permitted materials, etc.
- g. Taking away from the examination hall, the whole or part of any used / unused Answer Sheet without handing it over to the room invigilator.
- h. Tampering with the Barcode printed on the Answer Sheet.

6.5. Violation of any one or more of the instructions contained in the Commission's Instructions to Applicants / instructions printed on the question booklet / OMR answer sheet / memorandum of admission (hall ticket) shall also make the candidate liable to debarment, either permanently or for such period as the Commission deems fit, and/or rejection of candidature after due process and /or invalidation of answer sheet and/or any other penalty, as decided by the Commission.

6.6. Debarment: The period or which candidates shall be debarred from appearing for the examinations / participating in the recruitment processes conducted by the Commission, for the offences committed by the candidates are given below. Besides debarment, the candidate shall also be liable to rejection of candidature after due process, invalidation of answer papers, as the case may be. Criminal action may also be initiated against such candidates wherever indicated.

S. No.	Nature of Offence	Period of Debarment
1.	Attempts to influence the Chairman, Members of the Commission, Secretary, Controller of Examinations or any officer or staff of the Commission, personally /by letter/ through relatives, friends, patrons, officials or other persons.	Three Years
2.	Production of bogus community/ destitute widow/ differently abled/ ex-serviceman / transgender /person studied in Tamil medium certificates, etc. Tampering or alteration in the documents or certificates.	Permanent, Initiation of Criminal action

3.	Suppression of material information, at any stage of the selection process, regarding: (i) Previous appearances or availing free chances. (ii) Regular / temporary employment in Government or Quasi-Government organizations, local bodies, public sector undertakings, statutory bodies, public corporations, Universities, etc., (iii) Criminal cases, arrests, convictions, disciplinary proceedings, etc. Debarment or disqualification by Union Public Service Commission / State Public Service Commission / other agencies	One Year
4.	Possession of electronic devices such as cellular phones, watches and rings with in-built memory notes, Bluetooth devices, communication chip, any other electronic devices inside the examination room and also seeking the help of/ Assistance of any official/ invigilator/ any outsider in answering question	Permanent
5.	Possession of non-electronic devices such as P&G Design Data Book, books, notes, guides, hand bags, other non-permitted materials, etc. inside the Examination room.	Three Years
6.	Consulting with other candidates, copying from other candidates, permitting others to copy from his/her answer paper, copying from books or notes which Are printed/ typewritten/ handwritten, etc.	Three Years
7.	In addition to the offences list edhere in, the involvement of candidates in any In discipline or irregular practices within/ outside the examination room.	Three Years
8.	Written certain un warranted remarks unconnected with answers to the subject Concerned in the answer books, etc., i.e., vulgar, derogatory and obscene language.	Three Years
9.	Appeal to the examiners in the answer books, to value liberally or to award More marks or to be sympathetic, etc.	One Year
10.	Approaching or attempting to approach an examiner or getting other people to approach an examiner on his / her behalf	Permanent, Initiation of criminal action
11.	Taking away from the examination hall, the whole or part of any used / unused question cum answer booklet, without handing it over to the room invigilator. Tampering with the Barcode.	Three Years
12.	Candidates found smoking / intoxicated, or found to have entered into a quarrel of any kind, or to have misbehaved with the Chief Invigilator or with the inspection authorities or with the invigilator or with any other candidate either in the examination hall or inside the campus of the examination venue, either before, during or after the examination.	Three Years
13.	Indulging in grave malpractices, including impersonation, amounting to subversion of the conduct of examination.	Permanent, Initiation of Criminal action

Annexure-V

1. Experience Certificate for the post of Assistant Tester in Industries and Commerce Department (Post Code: 1908)

1.	Name of the Employee	
2.	Father/Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining service	
5.	Designation of the Employee	
6.	Nature of the Work/Duty performed by the Employee (To be mentioned in brief)	
7.	Whether the employee possesses experience in the field of Electrical Testing.	Yes/No
8.	Period of Experience	From _____ (date) To _____ (date)
9.	Total Experience (YY/MM/DD)	_____ years _____ months _____ days
10.	Whether Attendance Register/Attendance Rolls/ Pay Register and other records available for this Employee	Yes/No
11.	Name of the recognized concern (Industrial or Engineering Establishment / Factory)	
12.	(a) Whether the Industrial or Engineering Establishment is recognized by the Government of India / any State Government / by the State Board of Technical Education and Training, Chennai	Yes/ No/ Not Applicable
	(b) Whether the Factory is registered under the Factories Act, 1948 / the Director of Industries and Commerce, Chennai	Yes/ No/ Not Applicable
13.	Address of the Industrial or Engineering Establishment / Factory	
14.	Phone No. and Email ID of the Industrial or Engineering Establishment / Factory	

This is to certify that Thiru/Tmt./Selvi possesses the **experience in Electrical Testing** as stated above, as on the date of notification (i.e., 13.08.2024). The above particulars furnished by me are correct.

Affix photograph
Of the employee
With the signature
Of the Certifying
Authority on the
Photograph

Signature
Name & Designation of the
Establishment / Factory /
Competent Authority

Place: _____ Seal of Office/Officer

Date: _____

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Establishment / Factory wherein the individual had served or the authority competent to issue such certificate
2. The Competent authority who issues the certificate is cautioned that issuing of certificate which contains false or incorrect details will lead to legal / penal action against them.
3. Recognized concern shall mean an Industrial or Engineering establishment having facilities for wide range of practical work and recognized by the Government of India or by any of the State Government or by the State Board of Technical Education and Training, Chennai for affording practical training to candidates or any large or medium or small scale factory registered under Factories Act 1948 (Central Act LXIII of 1948) or the Director of Industries and Commerce, Chennai as a small scale industry using power and employing not less than 10 persons in its manufacturing process.

2. Experience Certificate for the post of Assistant Training Officer (Stenography-English) in Employment and Training (Post Code: 1733)

1.	Name of the Employee	
2.	Father/Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining service	
5.	Designation of the Employee	
6.	Nature of the Work/Duty performed by the Employee (To be mentioned in brief)	
7.	Experience in Stenography in English	
(i)	Whether the employee possesses experience in Stenography in English.	Yes/No
(ii)	Period of Experience	From __ (date) To ____ (date)
(iii)	Total Experience (YY/MM/DD)	____ years __ months ____ days
8.	Teaching Experience	
(i)	Whether the employee possesses teaching experience.	Yes/No
(ii)	Period of Experience	From __ (date) To ____ (date)
(iii)	Total Experience (YY/MM/DD)	____ years __ months ____ days
9.	Whether Attendance Register/Attendance Rolls/ Pay Register and other records available for this Employee	Yes/No
10.	Name of the Institution	
11.	Type of Institution	
12.	Address of the Institution	
13.	Phone No. and Email ID of the Institution	

This is to certify that Thiru/Tmt./Selvi possesses **experience in Stenography in English / Teaching/ Stenography in English and Teaching** as on the date of notification (i.e., 13.08.2024). The above particulars furnished by me are correct.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Signature
Name & Designation of the
Head of Institution /
Competent Authority

Place: Seal of Office/Officer:
Date:

Note:

1. The Institution may be Courts, Corporate firms, Medical/ Educational institutions, Recognised Type writing Institutions, Government Offices or Private firms.
2. The Competent authority who issues the certificate is cautioned that issuing of certificate which contains false or incorrect details will lead to legal / penal action against them.

3. Experience Certificate for the post of Draughtsman Grade III in Town and Country Planning (Post Code: 2114)

1.	Name of the Employee	
2.	Father/Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining Service	
5.	Designation of the Employee	
6.	Nature of the Work/Duty performed by the Employee (To be mentioned in brief)	
7.	Whether the employee possesses experience in the field of Civil Engineering.	Yes/No
8.	Period of Experience	From ____ (date) To ____ (date)
9.	Total Experience (YY/MM/DD)	____ years ____ months ____ days
10.	Whether Attendance Register/Attendance Rolls/ Pay Register and other records available for this Employee	Yes/No
11.	Name of the Organisation	
12.	Type of Organisation	
13.	Address of the Organisation	
14.	Phone No. and Email ID of the Organisation	

This is to certify that Thiru/Tmt./Selvi possesses the **experience in the field of Civil Engineering** as stated above, as on the date of notification (i.e., 13.08.2024). The above particulars furnished by me are correct.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Signature
Name & Designation of the
Head of Organisation / Competent
Authority

Place:
Date:

Seal of Office/Officer:

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation wherein the individual had served or the authority competent to issue such certificate.
2. The Competent authority who issues the certificate is cautioned that issuing of certificate which contains false or incorrect details will lead to legal / penal action against them.

4. Experience Certificate for the post of Hostel Superintendent cum Physical Training Officer in Employment and Training (Post Code: 1731)

1.	Name of the Employee	
2.	Father/Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining Service	
5.	Designation of the Employee	
6.	Nature of the Work/Duty performed by the Employee (To be mentioned in brief)	
7.	Whether the employee possesses teaching experience in the field of Physical Education.	Yes/No
8.	Period of Experience	From ____ (date) To ____ (date)
9.	Total Experience(YY/MM/DD)	____ years ____ months ____ days
10.	Whether Attendance Register/Attendance Rolls/ Pay Register and other records available for this Employee	Yes/No
11.	Name of the Institution	
12.	Type of Institution	
13.	Address of the Institution	
14.	Phone No. and Email ID of the Institution	

This is to certify that Thiru/Tmt./Selvi possesses **teaching experience in Physical Education** as stated above, as on the date of notification (i.e.,13.08.2024).The above particulars furnished by me are correct.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Signature
Name & Designation of the
Head of Institution / Competent
Authority

Place: Seal of Office/Officer:
Date:

Note:

1. The Institution may be any Educational institutions.
2. A certificate in the format prescribed should be obtained from the Head of Institution wherein the individual had served or the authority competent to issue such certificate.
3. The Competent authority who issues the certificate is cautioned that issuing of certificate which contains false or incorrect details will lead to legal / penal action against them.