

ANNEXURE-II**Subject Code:388****DRAUGHTSMAN (CIVIL) (ITI STANDARD)****UNIT 1: 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 2: 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 3: 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 4: 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 5: PLANE TABLE SURVEYING**Instrument used in plane table surveying:**

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

Resection method of plane table survey:

State the resection method of plane table survey

UNIT 6: LEVELLING**Types of levelling:**

Name the various types of levelling, Explain simple levelling, Explain differential levelling, Complete the reduced levels of points.

UNIT 7: 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 8: 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 9: TOTAL STATION**Introduction to total station:**

Get introduced to the Total station, Learn the evaluation of Total station from the convectional 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 10: 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 an basics

Paper-II
Part-A

கட்டாயத் தமிழ்மொழித் தகுதித்தேர்விற்கானபாடத்திட்டம்

(கொள்குறிவினாவிிற்கானதலைப்புகள்)

பத்தாம் வகுப்பு தரம்

1. பிரித்தெழுதுதல் / சேர்த்தெழுதுதல்.
2. எதிர்ச்சொல்லை எடுத்தெழுதுதல்.
3. பொருந்தாச் சொல்லைக் கண்டறிதல்.
4. பிழைதிருத்தம் (i) சந்திப்பிழையை நீக்குதல் (ii) மரபுப்பிழைகள், வழுவச் சொற்களை நீக்குதல் / பிறமொழிச் சொற்களை நீக்குதல்.
5. ஆங்கிலச் சொல்லுக்கு நேரான தமிழ்ச்சொல்லை அறிதல்.
6. ஒலி மற்றும் பொருள் வேறுபாடறிந்து சரியான பொருளையறிதல்.
7. ஒரு பொருள்தரும் பலசொற்கள்.
8. வேர்ச்சொல்லைத் தேர்வு செய்தல்.
9. வேர்ச்சொல்லைக்கொடுத்து / வினைமுற்று, வினையெச்சம், வினையாலணையும்பெயர், தொழிற்பெயரை / உருவாக்கல்.
10. அகரவரிசைப்படி சொற்களை சீர்செய்தல்.
11. சொற்களை ஒழுங்குப்படுத்தி சொற்றொடராக்குதல்.
12. இருவினைகளின் பொருள் வேறுபாடு அறிதல்.
(எ.கா.) குவிந்து-குவித்து
13. விடைக்கேற்றவினாவைத்தேர்ந்தெடுத்தல்.
14. எவ்வகை வாக்கியம் எனக்கண்டெழுதுதல் - தன்வினை, பிறவினை, செய்வினை, செய்ப்பாட்டுவினை வாக்கியங்களைக் கண்டெழுதுதல்.
15. உவமையால் விளக்கப்பெறும் பொருத்தமான பொருளைத் தேர்ந்தெழுதுதல்
16. அலுவல்சார்ந்த சொற்கள் (கலைச்சொல்)
17. விடை வகைகள்.
18. பிறமொழிச் சொற்களுக்கு இணையான தமிழ்ச்சொற்களைக் கண்டறிதல் (எ.கா.) கோல்டுபிஸ்கட் - தங்கக்கட்டி.
19. ஊர்ப்பெயர்களின் மரூஉவை எழுதுக (எ.கா.) தஞ்சாவூர் - தஞ்சை
20. நிறுத்தற்குறிகளை அறிதல்.
21. பேச்சுவழக்கு, எழுத்துவழக்கு (வாரான் - வருகிறான்).
22. சொற்களை இணைத்து புதியசொல் உருவாக்கல்.
23. பொருத்தமான காலம் அமைத்தல்
(இறந்தகாலம், நிகழ்காலம், எதிர்காலம்).
24. சரியான வினாச்சொல்லைத் தேர்ந்தெடு.
25. சரியான இணைப்புச்சொல்

(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 தெரிவுசெய்தல்
32. சொற்களின் கூட்டுப் பெயர்கள் (எ.கா.) புல் - புற்கள்
33. சரியான தொடரைத் தேர்ந்தெடுத்தல்
34. பிழைதிருத்துதல் (ஒரு-ஓர்)
35. சொல் - பொருள் - பொருத்துக
36. ஒருமை-பன்மை பிழை
37. பத்தியிலிருந்து வினாவிற்கான சரியான விடையைத் தேர்ந்தெடு.

Paper-II**Code No.003****Part-B**
General Studies (ITI Standard)
(Topics for Objective Type)**1. 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.

2. 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.

3. 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.

4. **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.

5. **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.

6. **INDIAN ECONOMY**

- i. Nature of Indian economy–Five year plan models – an assessment – Planning Commission and NITI Aayog.
- 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.

7. 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, ThanthaiPeriyar, Jawaharlal Nehru, Rabindranath Tagore, Kamarajar, Mahatma Gandhi, Maulana AbulKalam Azad, Rajaji, Subhash Chandra Bose, Muthulaksmi Ammaiyar, Muvalur Ramamirtham and other National Leaders.
- ii. Different modes of Agitation of Tamil Nadu and movements.

8. HISTORY, CULTURE,HERITAGEANDSOCIO-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.

9. 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.

10. APTITUDE & MENTAL ABILITY TESTS

- 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.