SYLLABUS FOR THE POST OF PRINCIPAL ITI / ASSISTANT DIRECTOR (TRAINING) IN TAMIL NADU EMPLOYMENT AND TRAINING SERVICE (DEGREE STANDARD)

SUBJECT CODE: 230

UNIT- I: MATHEMATICS


Integration: Techniques of integration using integration by parts and Bernoulli’s formula – Line, Surface and Volume Integrals – Change of order of integration.

Vector Calculus: Vectors and scalars – Directional derivatives – Gradient, Divergence and Curl of vectors – Applications of Green’s theorem, Gauss divergence theorem and Stoke’s theorem.

Complex Variables: Verification of Analyticity – Construction of Analytic functions – Conformal Mappings – Bilinear transformations.

Complex Integration: Cauchy’s integral theorem – Cauchy’s fundamental theorem – Cauchy’s residue theorem – Taylor’s theorem – Laurent’s series – Contour integration (excluding poles on the real axis).


UNIT – II: ENGINEERING PHYSICS

UNIT- III: ENGINEERING CHEMISTRY


UNIT- IV: ENGLISH

Grammar: Articles – Prepositions – Tenses (simple present, present continuous, simple past, past continuous, future, & perfect tenses) – Modal verbs – Clauses – Conditional clauses – Subject - Verb agreement – Conjunctions – Active & Passive voice – Reported speech (Direct to Indirect speech) – Error correction – Combining sentences using connectives – Cause & Effect expressions (because, so, due to, on account of, etc.) – Framing questions (converting statements into questions).

Vocabulary: Synonyms & Antonyms – Prefixes, Suffixes & Intensifying prefixes (e.g. Flammable – Inflammable) – Phrasal verbs – Idioms – Fixed expressions (e.g. adhere to, lodge a complaint to, etc.) – One word substitution – Collocation – Expansion of compound nouns (e.g. keyboard).

Reading: Reading comprehension passage – Data interpretation (e.g. comprehension questions based on table /chart) – Choosing appropriate title for a given short passage – Inferential questions based on a short reading passage – Reading comprehension questions making use of scanning & skimming strategies – Jumbled Sentences.

UNIT- V: BASICS OF COMPUTER ENGINEERING


Programming Languages: Classification of Programming Language, High-Level Languages.


UNIT- VI: BASICS OF CIVIL AND MECHANICAL ENGINEERING


UNIT- VII: BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING

Ohm’s law - Kirchoff’s laws - Introduction to DC and AC circuits – Power and powerfactor – Single phase and three phase circuits.

Operating principles of moving coil and moving iron instruments (Voltmeters and Ammeters) - Wattmeters and Energy meters.
Construction and principle of operation: DC motors - DC generators – Transformers - Induction motors.

Characteristics of PN junction diode - Zener diode - Half wave and full wave rectifiers - Bipolar junction transistor (CC,CE,CB configurations) – Amplifiers - Operational amplifiers.


Types of analog and digital signals - Modulation and Demodulation (Amplitude and frequency).

Communication systems: Radio - TV- Fax- Microwave - Satellite and optical fibre.

UNIT- VIII: PRINCIPLES OF MANAGEMENT

Management - Definition, Evolution - Taylor, Fayol, Elton Mayo, Peter Drucker.
Planning - Types, Steps, Forecasting, MBO, MBE.
Organising – Deparmentation - Line and staff, Delegation and Decentralization.
Staffing - Manpower planning, Recruitment and selection, Training, Performance Appraisal.

Directing - Leadership styles, Discipline, Communication in business.

Controlling - Types, Control Techniques, Budgetary Control, Statistical Control.

UNIT- IX: TOTAL QUALITY MANAGEMENT


UNIT- X: ENVIRONMENTAL SCIENCE AND ENGINEERING