Annexure I

DETAILED SYLLABUS OF PART A

Particulars	Syllabus - General (Part A)
General Knowledge	• Facts about India and other countries: Basic facts / Geography /Tourism / Transport systems / Personalities / Places / History /Constitution / Economy / Writers / Literatures / Indian States & Union Territories / International Organizations. • General Science : Branches of studies / Scientific instruments and appliances / Physics / Chemistry / Biology • Sports & Games • Important Events/ Movements / Leaders / Places / Years • Writers – Authors – Biography - Autobiography • Abbreviations
General English	• Spotting Errors / Vocabulary usage / Sentence Completion /Synonyms / Antonyms / Reconstruction of sentences / One word substitution / Idioms & Phrases / Grammar / Correct usage of Articles / Prepositions / Singular and Plural
Reasoning	• Analogy / Classification / Series Completion / Coding-Decoding /Blood Relation / Direction Sense Test / Alphabet Test / Number and Ranking / Puzzle Test / Odd Man out / General Intelligence
Quantitative Aptitude	• Number system / Fraction and Decimals / Simplification / Volume and surface areas / Square roots and Cube roots / Problems based on numbers, Speed, Time and Distance, Simple Interest / Compound Interest / Boats and Streams / Problems on Trains / Percentage - Interest / HCF and LCM / Average / Ratio and Proportion / Time and Work / Problems based on ages / Profit, Loss and Discount, Statistics / Permutations & Combinations / Probability.

DETAILED SYLLABUS OF PART B

Annexure I

Syllabus for Junior Technical Assistant (Electrical)

1	Basic electrical engineering	(a) Network theorems and laws (b) Magnetic circuits (c) AC fundamentals (d) RLC circuits
2	Static and rotating AC&DC machines	(a) DC generators (b) DC motors (c) Transformers (d) Synchronous generators (e) Synchronous motors (f) Induction motors (g) Single phase motors
3	Power system	(a) Generation of electrical power (b) Transmission and distribution (c) Circuit breakers (d) Cables
4	Electrical measurements	(a) Moving coil instruments (b) Moving iron instruments (c) Measurement of current, voltage, frequency and energy (d) Bridge circuits
5	Semiconductor Devices	(a) Semiconductors (b) Diodes and power supplies (c) Transistors
6	Basic Computer Applications	(a) Hardware and software (b) Operating systems and applications (c) Internet

Annexure I

Syllabus for Junior Technical Assistant (Mechanical)

1	Manufacturing Processes	(a) Casting (b) Forging (c) Rolling (d) Extrusion (e) Machining including surface finishing
2	Welding	(a) Types of welding (b) welding defects (c) Testing of welds (d) Brazing and soldering
3	Theory of Machines and Machine Design	(a) Fundamentals and types of machines (b) Common mechanisms (c) Cams and followers (d) Common transmissions (e) Flywheels and governors (f) Brakes, dynamometers, clutches and bearings (g) Balancing and vibration
4	Thermal Engineering	(a) Energy sources (b) Fundamentals of thermodynamics (c) Ideal gasses (d) Steam turbines and condensers (e) Heat Transfer
5	Applied Mechanics	(a) Forces and moments (b) Friction (c) Centroid and Centre of Gravity (d) Simple machines, pulleys, blocks and wheels (e) Kinetics (f) Kinematics (g) Work, power, energy
6	Metallurgy and Material Properties	(a) Physical, Mechanical, Thermal, Electrical, Magnetic Properties etc (b) Effect of heat treatment (c) Surface hardness and hardening (d) Corrosion (e) Testing of metals (f) Lubricants and their properties

7	Strength of Materials	(a) Stress and strain (b) Bending and shear forces (c) Bending and shear stress (d) Moment of Inertia (e) Torsion
8	Fluid Mechanics	(a) Properties of liquids (b) Fluid dynamics (c) Classification of fluids (d) Laws related with fluid flow and dynamics (e) Turbines
9	Basic Computer Applications	(a) Hardware and software (b) Operating systems and applications (c) Internet
10	Basics of Electrical Engineering and Power Generation	(a) Electrical power generation, transmission and distribution (b) AC fundamentals (c) Measuring instruments (d) DC motors (e) AC appliances (f) Utilisation of electrical energy (g) Electrical safety
11	Industrial Management	(a) Management process (b) Organisational Management (c) Human resource management (d) Material Management
12	Metrology and Instrumentation	(a) Classification of instruments - range and span, accuracy and precision, reliability, calibration, hysterisis and dead zone, drift, sensitivity, threshold and resolution, repeatability and reproducibility, linearity, speed of response, fidelity and dynamic errors, overshoot. (b) Measurement of error- classification of errors, environmental errors, signal transmission errors, observation errors, operational errors. (c) Transducers : Classification of transducers- active and passive, resistive, inductive, capacitive,

		piezo, resistive, thermo resistive (d) Specification, selection and application for pressure, temperature, flow, humidity, displacement, velocity, force, strain, sound. (e) Control Systems (f) Measurement of displacement, flow, temperature, strain, miscellaneous. (g) Limits, fits, tolerances and gauges (h) Screw thread measurement (i) Surface finish measurement
13	Construction and functioning of various machines	(a) Pumps (b) Compressors (c) Boilers (d) Turbines (e) IC Engines (f) Purifiers and separators (g) Hydraulic machinery and lifting equipment etc
14	Refrigeration and Air-conditioning	(a) Basics of refrigeration (b) Refrigeration cycles (c) Refrigerants (d) Components of a refrigeration system (e) Air conditioning (f) Air conditioning Systems (g) Air Distribution Systems