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

Sl No	Name of Post	Syllabus – Discipline related (Part B)		
1	**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	(a) Hardware and software

Sl No	Name of Post	Syllabus – Discipline related (Part B)		
			Applications	(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

<table>
<tr><th>Sl No</th><th>Name of Post</th><th colspan="3">Syllabus – Discipline related (Part B)</th></tr>
<tr><td></td><td></td><td></td><td></td><td>(g) Air Distribution Systems</td></tr>
<tr><td rowspan="6">2</td><td rowspan="6">Junior Technical Assistant (Electrical)</td><td>1.</td><td>Basic electrical engineering</td><td>a) Network theorems and laws
b) Magnetic circuits
c) AC fundamentals
d) RLC circuits</td></tr>
<tr><td>2.</td><td>Static and rotating AC&DC machine</td><td>a) DC generators
b) DC motors
c) Transformers
d) Synchronous generators
e) Synchronous motors
f) Induction motors
g) Single phase motors</td></tr>
<tr><td>3.</td><td>Power system</td><td>a) Generation of electrical power
b) Transmission and distribution
c) Circuit breakers
d) Cables</td></tr>
<tr><td>4.</td><td>Electrical measurements</td><td>a) Moving coil instruments
b) Moving iron instruments
c) Measurement of current, voltage, frequency and energy
d) Bridge circuits</td></tr>
<tr><td>5.</td><td>Semiconductor Device</td><td>a) Semiconductors
b) Diodes and power supplies
c) Transistors</td></tr>
<tr><td>6.</td><td>Basic Computer Applications</td><td>a) Hardware and software
b) Operating systems and applications
c) Internet</td></tr>
<tr><td>3</td><td>Storekeeper</td><td colspan="3"><u>Theoretical and application knowledge on</u>
A. <u>Stores /Warehouse Management</u>
• Objectives, Functions & responsibilities of Store keeping
• Types of Stores
• Storage Systems & Layout
• Store Management Functions - processes and procedures
• Storage of hazardous materials and its management
• Category Management- classification and codification
• Stock Verification Methods
• Material Handling Methods and Equipments
• Importance of Documentation
B. <u>Inventory Management</u>
• Functions of inventory
• Classification of inventory
• Costs associated with inventory
• Inventory control methods (like ABC, FSN, VED analysis etc)
C. <u>5S Methodology of housekeeping</u>
• Objectives and importance
• 5S in practical applications
D. <u>Computer Literacy, MS Office & E-mail</u> (2007 & higher versions)</td></tr>
</table>

Sl No	Name of Post	Syllabus – Discipline related (Part B)
		• Windows Basics • MS Excel Basics • MS Word Basics • Email – basics and applications E. <u>ERP – Basics</u> • Objectives and importance • Functions • Different ERP Systems like SAP and relevant modules with reference to material procurement F. <u>ISO 9001, 14001 & OHSAS 18001 -</u> Objectives and importance G. <u>Customer Relationship Management in stores</u> – Basics, Objectives and importance, Applications
4	**Operator (Plasma Plate Cutting Machine)**	**<u>Theoretical and application knowledge on</u>** • Types of Cutting • Basics of Plasma Plate Cutting Machine • Various power source • Shielding Gases • Maintenance and Calibration • Accuracy in cutting • Safe operating Procedures in Plate Cutting. • Maintenance aspects in Plasma Plate Cutting Machine including Mechanical, Electrical and Electronics • Different type of Lifting Methods, Tools, Ropes and rigging in cranes including maintenance aspects. • First aid • Basics of Machineries including measuring methods • Types of material handling equipments
5	**Operator (Press)**	**<u>Theoretical and application knowledge on</u>** • Types of Press • Various parts of Press • Line Heating • Cranes operations • Rigging activities • Hydraulics and Pneumatics. • Measurement tools- Vernier callipers/ dial gauges etc. • Types of Material Handling Equipments • Maintenance aspects including Mechanical, Electrical and Electronics • Industrial safety & Safety Procedures • Drawings and standards- Limits / fit / clearances etc.
6	**Operator (Pipe Bending)**	**<u>Theoretical and application knowledge on</u>** • Measurement tools- Vernier callipers/ dial gauges etc. • Types of Material Handling Equipments • Maintenance aspects including Mechanical, Electrical and Electronics • Basics of Electrical and Electronics • Basics of Machineries

Sl No	Name of Post	Syllabus – Discipline related (Part B)
		• Pipe Bending processes. • Tools nomenclature • Bench tools • Drawings and standards- Limits / fit / clearances etc. • Types of Materials related to pipes. • Industrial safety & Safety Procedures.
7	**Operator (Crane)**	**<u>Theoretical and application knowledge on</u>** • Types of Cranes and Crane operations • Different type of Lifting Methods. • Basic Rigging methods including various communication methods , Check and maintenance of Crane ropes, Rope pulleys, shackles Load hooks and end fittings , Standard safety practices while operating Different types of cranes • Basics of Electrical & Mechanical systems including various braking systems in Cranes, Operational interlocks, Safety devices used in Cranes, latest technologies etc. • Safety Procedures, First-aid and Awareness of Industrial Rules and Regulations. • Maintenance aspects in Cranes including Mechanical, Electrical and Electronics • Basics of Machineries including measuring methods • Types of Material Handling Equipments
8	**Operator (Plate Preservation)**	**<u>Theoretical and application knowledge on</u>** • Types of Painting • Different types of Blasting Methods • Safe operating Procedures in Painting and Blasting. • Maintenance aspects in Blasting and Painting including Mechanical, Electrical and Electronics • Different type of Lifting Methods, Tools, Ropes and rigging in cranes including maintenance aspects. • First aid • Basics of Machineries including measuring methods • Types of Material Handling Equipments
9	**Welder Cum Fitter [Welder/ Welder (Gas & Electric)]**	**<u>Theoretical and application knowledge on</u>** • Principle of welding • Welding positions & WPS/PQR/WPQ • Weld joint nomenclature and welding symbols • Welding and cutting tools • Welding techniques • Welding defects and remedial actions • Specification of Welding rods as per AWS • Gouging methods • Welding of Carbon steel/Al/Austenetic SS/High strength low alloys

Sl No	Name of Post	Syllabus – Discipline related (Part B)
		• Pipe welding – Cu, Ni and SS material • Modern welding procedures – SAW/ TIG/ CO2/ Electro gas welding • FCAW process with ceramic backing • One side welding for panel welding • Testing of weld joints • Safety procedures/First aid • Types of material handling equipments
10	**Welder Cum Fitter (Fitter)**	**<u>Theoretical and application knowledge on</u>** • Tools Bench wise/Files etc • Marking and measuring tools • Limit/Fits/Tolerance • Numerical ability – Mass/Volume/density/unit conversion/unit system • Physical properties of metals and specific usage • Different Joining Methods • Welding Methods • Overhauling of machineries • Maintenance aspects • Shaft alignment and shaft sighting • Bedding or Chocking of machinery foundations • Safety procedures /First aid • Types of material handling equipments