

**DETAILED SYLLABUS OF PART A**

<b>Particulars</b>	<b>Syllabus - General (Part A)</b>
General Knowledge	<ul style="list-style-type: none"> <li>• Facts about India and other countries: Basic facts/Geography /Tourism/Transport systems /Personalities/Places/History/ Constitution / Economy /Writers /Literatures /Indian States &amp; Union Territories/International Organizations.</li> <li>• General Science : Branches of studies/Scientific instruments and appliances/Physics / Chemistry/Biology</li> <li>• Sports &amp; Games</li> <li>• Important Events/Movements/Leaders/Places/Years</li> <li>• Writers – Authors – Biography - Autobiography</li> <li>• Abbreviations</li> </ul>
General English	<ul style="list-style-type: none"> <li>• Spotting Errors/Vocabulary usage/Sentence Completion/ Synonyms/Antonyms /Reconstruction of sentences/One word substitution/Idioms &amp; Phrases/Grammar /Correct usage of Articles /Prepositions/Singular and Plural</li> </ul>
Reasoning	<ul style="list-style-type: none"> <li>• Analogy /Classification /Series Completion /Coding-Decoding/ Blood Relation /Direction Sense Test/Alphabet Test/Number and Ranking/Puzzle Test/Odd Man out/General Intelligence</li> </ul>
Quantitative Aptitude	<ul style="list-style-type: none"> <li>• 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 &amp; Combinations/ Probability.</li> </ul>

### **DETAILED SYLLABUS OF PART B**

<b>Name of Post</b>	<b>Syllabus - Discipline related (Part B)</b>
<b>For all posts</b>	<ul style="list-style-type: none"> <li>• <b>Organisational Skills-</b> Role of a supervisor – Manpower management &amp; resource planning – Work force motivation – Grievance handling at shop floor level – Code of Conduct &amp; Discipline - Importance of time keeping &amp; productivity.</li> <li>• Basic knowledge of computer applications.</li> <li>• <b>Supervisory Duties:-</b> <ul style="list-style-type: none"> <li>➤ <b>Principles of Organization</b> – Principles of organization, authority, responsibility, accountability, delegation, span of control, centralization, unity of command.</li> <li>➤ <b>Motivation</b> – Meaning of motivation, understanding human behavior, factors of motivation, levels of motivation, methods of motivating people, brief on motivation theories.</li> <li>➤ <b>Communication</b> – Purpose of communication, communication process, methods of communication written, oral, audio – visual, report writing, channels of communication namely formal and informal, art of giving instructions, barriers of communication, guidelines for effective.</li> </ul> </li> <li>• <b>HSE &amp; IMS-</b> Awareness on Industrial safety &amp; PPEs – Importance of housekeeping – Knowledge of IMS – Quality Standards – 5 S – management of industrial hazardous wastes.</li> </ul>

**In addition to the above, following are the topics included for various posts:-**

<b>Post Code</b>	<b>Name of Post</b>	<b>Syllabus - Discipline related (Part B)</b>
A1	<b>Assistant Engineer (Mechanical)</b>	<p><b><u>Theoretical and application knowledge on</u></b></p> <ul style="list-style-type: none"> <li>• Thermodynamics, Energy cycles, IC Engines, Four stroke &amp; two stroke engines</li> <li>• Refrigeration &amp; Air conditioning, Psychrometrics</li> <li>• Welding – types &amp; defects, Gas flames, Soldering &amp; Brazing</li> <li>• Manufacturing processes &amp; Machine tools.</li> <li>• Corrosion &amp; its prevention.</li> <li>• Renewable &amp; Non- renewable energy sources</li> <li>• Pumps &amp; its types</li> </ul>
A2	<b>Assistant Engineer (Electrical)</b>	<p><b><u>Theoretical and application knowledge on</u></b></p> <ul style="list-style-type: none"> <li>• Fundamentals of AC Systems</li> <li>• Basic Electrical and Electronics Concepts</li> <li>• Fundamentals of Analogue devices</li> <li>• Fundamentals of Digital circuits</li> <li>• Electrical Measurement and measuring instruments</li> <li>• Electrical Machines – DC Machines, AC Induction Machines, Synchronous Machines</li> <li>• Power Generation, Transmission and Distribution</li> <li>• Quality standards (ISO, IMS, etc)</li> <li>• Industrial Safety</li> </ul>

Post Code	Name of Post	Syllabus - Discipline related (Part B)
A3	<b>Assistant Engineer (Weapons)</b>	<p><b><u>Theoretical and application knowledge on</u></b></p> <ul style="list-style-type: none"> <li>• <b>Gyros</b> : Types of Gyros, working principles, inputs and output to/from gyros, Overhaul/ STW/ HATs of Gyros.</li> <li>• <b>Navigation Aids</b> : Working Principle of EM Log &amp; Echo sounder, Precautions during docking of Ships, Checks of u/w appendages prior undocking of ship, Types of protocols used for communication between Nav Aids, Overhaul/ STW/ HATs of EM Log &amp; Echo sounder.</li> <li>• <b>Controls</b> : Open Loop and Closed Loop control systems, Overhaul and Checks of Control Elements.</li> <li>• <b>Data Networks &amp; Communication Systems</b> : Types of Data Networks, redundancy in data networks, Switches &amp; Routers, Interfacing equipment to Network Devices, Communication Protocols, Waves and Communication Basics, Amplitude Modulation, Frequency Modulation, Computer Basics, Pulse Modulation, Communication Networks Propagation of Waves.</li> <li>• <b>RADAR</b> : Radar Principles, Radar fundamentals, CW Radar / Doppler, Advanced Radar, High Resolution Radar, Electronic scanning, Tracking Systems.</li> <li>• <b>Electro- Optics</b> : Introduction to Electro-Optics, IR Imaging, Other E-O Systems.</li> <li>• <b>U/W Acoustics &amp; SONAR</b> : Underwater Acoustics, Environment, SONAR Performance , SONAR Performance , SONAR Systems.</li> <li>• <b>Delivery Systems &amp; Fire Controls</b> : Introduction to Fire Control, Launching Systems/Propulsion, Navigation and Guidance, Systems Engineering Introduction, Flight Control, Ballistics, Homing.</li> <li>• <b>Servo System</b> : Servo Elements, data transmission, servo systems, Stabilizers, servo theory.</li> <li>• <b>Weapons</b> : Datum Marking for alignment of Weapons and precautions during hot work, Procedures &amp; Precautions during Removal and Re-fitment of Gun mounts, Alignment of weapons, Checks of Firing Arcs, Control Systems &amp; Drives for Weapon Mountings.</li> <li>• <b>Combat Management System</b> : Block Diagram of CMS, Interfacing of weapons and sensors, Precautions during switching On/Off of CMS Modules, Power Supply requirements and environmental conditions for CMS.</li> <li>• <b>Drawings and Specification:</b> Ability to read specification, circuit diagrams, technical description pertaining of weapons systems, Fundamental concepts and definition on weapons including fire control system.</li> </ul>

Post Code	Name of Post	Syllabus - Discipline related (Part B)
A4	<b>Assistant Fire Officer</b>	<p><b><u>Theoretical and application knowledge on</u></b></p> <ul style="list-style-type: none"> <li>• Basics of Fire-Physics and Chemistry of fire</li> <li>• Hose, hose fittings, Branches and nozzles</li> <li>• Ladders</li> <li>• Pumps and primers</li> <li>• Portable fire extinguishers, Performance and construction as per IS 15683</li> <li>• Foam and foam making branches</li> <li>• Fixed fire fighting installations</li> <li>• Respiratory supporting systems in fire services (including SCBA set)</li> <li>• Gas fire</li> <li>• Fire service hydraulics</li> <li>• Plan reading</li> <li>• Explosives</li> <li>• Hazards of Chemicals, MSDS</li> <li>• Storage of hazardous goods, Petroleum etc</li> <li>• Electricity- basic concepts</li> <li>• Different types of extinguishing media</li> <li>• Practical fireman ship</li> <li>• Hydrants and water relay</li> <li>• Automatic Fire detection and alarm systems</li> <li>• First aid, Resuscitation and CPR</li> <li>• Sprinkler and drenchers</li> <li>• Building construction- definitions as per NBC part-IV</li> <li>• Important rescue tools</li> <li>• Fire fighting appliances</li> <li>• Global warming and environmental protection- green house gases and ozone depletion</li> </ul>
A5	<b>Assistant Administrative Officer</b>	<ul style="list-style-type: none"> <li>• Basic Knowledge about Personnel Management &amp; Industrial Relations.</li> <li>• Work culture.</li> <li>• Employee coordination &amp; Manpower Management.</li> <li>• Resource Planning.</li> <li>• Disciplinary proceedings / Grievance handling.</li> <li>• Time Management.</li> <li>• Office Management and procedures.</li> <li>• Familiarity with Word.</li> <li>• <b>Familiarity with Excel:-</b> <ul style="list-style-type: none"> <li>➤ Entering, Editing and Formatting Data</li> <li>➤ Formatting Numbers</li> <li>➤ Managing Worksheets</li> <li>➤ Modifying Rows and Columns</li> <li>➤ Understanding Formulas</li> <li>➤ Changing Views</li> <li>➤ AutoFill and Custom Lists</li> <li>➤ Conditional Formatting</li> <li>➤ Tables</li> <li>➤ Data Tools</li> <li>➤ Referencing Formulas</li> <li>➤ Ranges and Dates</li> <li>➤ Lookups</li> <li>➤ Conditional Logic</li> </ul> </li> </ul>

Post Code	Name of Post	Syllabus - Discipline related (Part B)
		<ul style="list-style-type: none"> <li>➤ Text Formulas</li> <li>➤ Introduction to Charts</li> <li>➤ Formatting Charts</li> <li>➤ Adding Graphics to Spreadsheets</li> <li>➤ Outline, Sort, Filter, and Subtotal</li> <li>➤ PivotTables</li> <li>➤ Protecting Data</li> <li>➤ Printing</li> <li>➤ Saving a Workbook</li> </ul>
A6	<b>Accountant</b>	<p><b><u>Theoretical and application knowledge on</u></b></p> <ul style="list-style-type: none"> <li>• Financial Accounting</li> <li>• Trading &amp; Profit &amp; Loss Accounts and Balance Sheet</li> <li>• Bank Reconciliation Statement</li> <li>• Depreciation, Reserves and Reserve Funds, Ratio Analysis</li> <li>• Capital and Revenues, Revenue Accounts, Receipts &amp; payments Accounts, Income &amp; Expenditure Accounts</li> <li>• Company Accounts</li> <li>• Financial Statements and Reporting</li> <li>• Cost Accounting, Cost Records and Cost Audit</li> <li>• Direct and Indirect Taxes- Income Tax Act, Central Sales Tax Act, Service Tax Act, Central Excise Act</li> <li>• Contracts Act, Payment of Gratuity Act, Payment of Bonus Act, ESI Act, EPF Act.</li> <li>• Companies Act, Factories Act, ID Act</li> <li>• FEMA, SCRA and SEBI Act.</li> <li>• Company Audit, preparation of Auditors Report and other requirements.</li> <li>• Familiarity with Word.</li> <li>• <b>Familiarity with Excel:-</b> <ul style="list-style-type: none"> <li>➤ PivotTables and Charts</li> <li>➤ Lookups, Ranges and Dates</li> <li>➤ Conditional Formatting</li> <li>➤ Managing Worksheets</li> <li>➤ Built formulas and Understanding Formulas</li> <li>➤ Changing Views</li> <li>➤ AutoFill and Custom Lists</li> <li>➤ Conditional Logic, Tables &amp; Data Tools</li> <li>➤ Referencing Formulas</li> <li>➤ Ranges and Dates</li> <li>➤ Introduction &amp; Formatting Charts</li> <li>➤ Adding Graphics to Spreadsheets</li> <li>➤ Outline, Sort, Filter, and Subtotal</li> <li>➤ Protecting Data</li> <li>➤ Printing</li> <li>➤ Saving a Workbook</li> </ul> </li> </ul>