

Syllabus for the Post of Junior Fire Supervisor -Level A1

Essential Qualification: Intermediate with 6 months' experience in fire services. Valid Driving Licence for Heavy Vehicles essential. Driving Test on Fire Tender/ Heavy Vehicle applicable. Physical standards as specified and Physical Efficiency Test apply

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| Part (A): General Mental Ability and Aptitude | 20% (20 questions carrying 1 mark each) |
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General Mental Ability and Aptitude to test the following:

- Interpersonal Skills
- Logical reasoning/Analytical/Comprehension ability
- Basic Numeracy and Data Interpretation Skills
- General Awareness

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| Part (B): Subject/Domain Related | 80 % (80 questions carrying 1 mark each) |
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1. **Discipline:** Introduction, General principles of discipline, essentials for discipline and outward signs.
2. Basics of Physics & Chemistry related to Fire Physical properties of matter, Definition of Density, Relative density, Effects of density on behaviour of gases, Vapour Density, Melting & Boiling point, introduction to Heat and Combustion, Measurement of temp and conversion of their scales, definition of Flammable liquids, Gases & vapours, specific heat, latent heat.
3. **Anatomy of Fire:** Definition of Combustion, Elements of Combustion, Products of combustion. Fire triangle and fire tetra hadrons, Flash point, Fire point, Ignition Temperature, spontaneous combustion. Flammability Range. Transfer of heat. Measurement of heat and conversion of heat measuring units
4. **Classification of Fires:** Classification of fire and types of extinguisher, maintenance, method of operation. Techniques of fire extinction - Smothering, Cooling and Starvation. Care and maintenance of Fire Extinguishers. Introduction to Class K Fire
5. **Hose and Hose Fittings:** Type of suction & Delivery Hoses, Material used in Construction. Hose-reel, and causes of decay, operational use of Hose, Storage, Care & Maintenance, Repairing and Binding of Hose, Coupling and collecting head adapters, nozzles and other miscellaneous tools and equipment.
6. **Source of water supply:** Capacity and use, Open source - Ponds, Rivers, Streams, Sea, hydrant types & uses. Over Head Tanks Capacity and use.
Water Relay:- Types of relay-system, Advantages and disadvantages.
7. **Ladders:** Introduction of Types of ladders, Extension Ladder, Hook Ladder, Use, Care and maintenance of ladders. Pitching of Ladders parts and components.
8. **Small & Special Rescue Gears:** Different types of small gears, Fireman Axe, Ceiling Hook, Crowbar, Door Breaker, Padlock equipment and different type of Saw used during fire fighting & rescue techniques. Care, maintenance & testing of small gears

9. **Breathing Apparatus set:** Introduction of BA Set, Types of BA Sets in use, Components and function/ working principles of normal compressed air BA set and its station maintenance.
10. **Rope and Knots:** Construction and fiber used for Ropes, types and use of Lines, causes of deterioration, inspection and test, methods of testing, care and maintenance, standard knots and their uses.
11. **Personal Protective Equipment (PPE):** Need for Personal Protective Equipment, Selection, Use, Care & Maintenance, Respiratory and Non-respiratory PPEs.
12. **Pump and Primers:** Classification of common pumps in use in Fire Service and its types , centrifugal pump, its parts, construction & their function, different types of primers, Reciprocating and Gas Ejector primers, Care and Maintenance, introduction to Cooling System & its importance.
13. **Fixed Fire Fighting Installations:**
 - A. Water Based- Riser mains- Wet Riser, Dry Riser, Hose reel installation, use and maintenance, introduction to hydrants, monitors,
 - B. Non-water based- Foam based, Foam pourer, DCP, CO₂, based installations use and maintenance.
14. **Electricity & fire Hazards:** General introduction, Fundamentals of electricity, Common Causes of electrical fires and its remedial measures, Electrical Hazards, protective measures and fire fighting procedure.
Foam & Foam making equipment; Water as an extinguishant- its merit-demerits and modification. Introduction to all types of foam concentration, properties of foams and techniques of extinguishment, types of foam, characteristics of good foam, foam making equipment-Mechanical High expansion, medium expansion and Low expansion foam, Storage of foam compound.
15. **Fire Fighting Appliances:** Special features of water tender and special types of fire tenders (Foam tender, DCP Tender, CO₂ tender, Multipurpose tender). Introduction of Portable fire pump, capacity, use and maintenance. Fire tenders, types use and maintenance. Foam Tender- General requirements, use, Operation, maintenance and test special Appliances. (RIV, Rescue van)
16. **Practical Fireman ship:** Duties & responsibilities of fire crew at a fire station & Fire Ground; Methods of entry, Rescue & fire fighting in smoke logged building. Salvage work- Direct/ indirect loss, Mitigation measures, Salvage seats and other special equipment.

Application of various types of fire fighting methods. (Defensive, Offensive).
17. **Special Services Calls:** Introduction, Methods employed by fire service to rescue trapped persons in lifts, sewer, trapped under vehicle, Debris of collapsed building and Wells, Rescue of human being animals from pounds & Rivers.
18. **Medical First Aid:** Definition of first-aid, Quality of First Aider, Shock-sign and symptoms, Asphyxia Sign and symptoms, Wound and Hemorrhage - Classification of injuries, signs, symptoms and management of Burn, its severity, Scalds and frost bites, signs and symptoms of management of heart attack. Fractures - Causes, types, Signs and symptoms, management, sprain and dislocation - Sign & symptoms management

& observation of patient, Snake Bites- treatment & management, resuscitation - different methods.

19. **Fire Service Organization:** Introduction of Fire Service Organization, Writing and importance of occurrence book. Duty Card/ Register, fire reports, Log books, Hose Book, Stock Registers, Leave Register, Workshop order book, Defaulter Register etc. Station discipline and watch room Control room procedure. Executive duties of fireman. Familiarization and demonstration of smoke detectors, Heat Detectors Gas Detectors.

Hazardous Chemicals: Dangerous chemicals and substances, storage of hazardous chemicals and Fire Safety & fire fighting.

20. **Rural Fires:** Fire Hazards in grasslands, Forest areas, rural areas and hay stacks. Causes of fire Special appliances and equipment used. Methods of fire fighting in rural area.
21. **Hydraulics:** introduction & Units of measuring Length, Area and Volume of regular and irregular shaped Pressure & their conversion, Principal Characteristics of pressure and pressure head.

Note: The above syllabus is indicative and the questions in the test may include similar other topics pertaining to the level and content of essential qualification.