

SYLLABUS OF WRITTEN TEST FOR THE POST OF ESTATE ASSISTANT

Post Specific content :

80 %

- 1. Building Construction, Materials and Testing:** Building Stones, Bricks & Tiles, Cement, Timber and Wood Based Products, bitumen asphaltic materials, recycled aggregates, Brick Masonry, Stone Masonry, Wall, Arches and Lintels, Mortar & Concrete, Doors, Windows and Ventilators, Roof, Floors, Stairs, Plastering and Pointing, Sustainable Construction, Testing of cement, aggregates, bitumen, steel, concrete, bricks, pavers, tiles,
- 2. Hydraulics:** Fluids and Properties of fluids, Hydrostatic Pressure, fluid flow and measurement through pipe and open channel, Hydraulic Pumps.
- 3. Concrete and Reinforced Concrete Structures:** Concrete and its Properties, chemical and minerals admixtures, Concrete Placement, Compaction and Curing, Theory of RCC Beams, Bonds in RCC Beams, Singly & Doubly RCC Beams, RCC Slabs, Column & Wall Footing.
- 4. Steel Structures:** Structural Steel Sections, Tension, Compression and Beam Members, Roof Trusses, column and Bases.
- 5. Surveying:** Chain & Compass Surveying, Levelling using Dumpy and IOP Level, Plane Table Surveying, Contouring, Theodolite Surveying, Tachometric surveying, Introduction to Total Station.
- 6. Irrigation Engineering and Landscape Development:** Drainage and Ground Water Re-charge, Landscape planning, design and development.
- 7. Transportation Engineering:** Road Geometrics, Highway Alignment, Pavement Material, Rigid & Flexible Pavements, Road Drainage and Maintenance, Road Construction Equipment.
- 8. Soil Mechanics:** Physical Properties of soil and Classification, Strength Characteristics of soil, Soil Compaction and consolidation, Bearing Capacity of soil, Shallow and deep foundation, site investigation.
- 9. Estimation and Costing:** Estimation measurements and Types of estimation, Analysis of Rates, Road and Building Work Estimation and Valuation, Tender preparation, bid process, minimum wage, labour laws.
- 10. Applied Mechanics:** Laws of forces, Principle of moment and its applications, Friction, Centre of Gravity, Simple and compound machines, stress and Strain, bending moment, shear force, slope and deflection.
- 11. Environmental Engineering:** Quality & Quantity of Water, Laying of Pipes, Building Water Supply, Sewerage System, Laying and Construction of Sewers, Building Drainage, Solid Waste Management, Air Quality Standards, Air Pollution control, Noise Control.
- 12. Construction Management:** Construction Planning, Budgeting, Scheduling & management, Site Organization, Inspection and Quality Control, Accidents and Safety in Construction.
- 13. Building Services as per NBC, 2016:** Fire and Life Safety, Signs and Outdoor display structures, asset and facility management.

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(78A) 1091

14. Building Maintenance and Repair: Factors affecting building deterioration, Investigation of defects, root cause of maintenance problems, repair materials and techniques for building maintenance.

15. Basic Knowledge of Refrigeration and Air Conditioning: Basic concepts and principles of refrigeration: Refrigeration methods. Air refrigeration cycle, vapour compression cycle, simple vapour absorption cycle, their applications and limitations. Refrigerants: Important properties of refrigerants, properties and applications of commonly used refrigerants such as R11, R12, R22, NH₃ etc.

16. Basic knowledge of Electrical Engineering: DC Circuits – Ohm's law, Kirchhoff's law, Electromagnetic induction – Faraday's laws, Single phase and Three phase circuits, Measurement of electrical quantities like voltage, current, power and energy and frequency, AC machines – induction motors, synchronous generators, synchronous speed, frequency of generated voltage, Domestic wiring, service mains, meter board and distribution board, fuse and miniature circuit breakers. Precaution against electric shock.

17. Computer Knowledge

Components of a computer system, specifications of computer system, Input and output devices and installation of printers and other input output devices, Introduction to Internet and Internet Applications, MS windows, MS-Word, MS-Excel, MS-Power Point, MS-Access, Operating System types, Data security/Cyber security.

Mental Ability, Reasoning and Mathematical Skills :

10%

Analogy, series completion, coding-decoding, blood relations, logical Venn diagrams, alphabetical test, number ranking and time sequence test, mathematical operations, arithmetical reasoning, data interpretation, data sufficiency, cubes and dices, construction of sequences and triangles.

English and Hindi Language proficiency :

10%

Vocabulary, Grammar, Sentence Structure, Synonyms, Antonyms and its correct usage etc. शब्दावली, व्याकरण, वाक्य संरचना, पर्यायवाची, विलोम शब्द और उनका सही उपयोग आदि।

DOMAIN SKILL TEST FOR THE POST OF ESTATE ASSISTANT

Candidates should be able to demonstrate proficiency in :

1. To determine the softening point and ductility of Bitumen.
2. To determine the standard consistency of OPC / PPC.
3. To determine the crushing value of coarse aggregates.
4. To determine the compressive strength of paver block.
5. Estimate of plasterwork in ceilings and walls of a room.

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Dean (A & F)

6. To determine impact value of coarse aggregates.
7. Sieve analysis of fine and coarse aggregates to determine zone of sand and size of coarse aggregates.
8. To determine flakiness and elongation index of coarse aggregates.
9. Liquid & Plastic limit of soil sample.
10. CBR of soil sample, Maximum Dry Density and Optimum Moisture Content of soil sample (MDD + OMC Test)
11. Density of soil by sand replacement method
12. Compressive strength of CC cubes and flexural strength of beams.
13. Starting an induction motor using DOL starter.
14. Forward and reverse running of induction motor.
15. Use of voltmeter, ammeter and wattmeter to measure voltage, current and power of a circuit.
16. Identify the parts of a window air-conditioner and state the function of each part.
17. Identify the tools / gauges required to check refrigerant level (gas pressure) in an air-conditioner.

Note : (a) The total marks for the domain skill test = 50.

(b) The Domain skill test is qualifying in nature, and candidate must score a minimum of 40% marks.

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