Haryana Public Service Commission

Bays No. 1-10, Block-B, Sector-4, Panchkula

Announcement

It is hereby announced for the information of candidates who have applied or applying for the posts of (i) Assistant Engineer (Civil) in Public Works (B&R) Department Haryana (ii) Municipal Engineer (Civil) in Municipal Corporation, Urban Local Bodies Department Haryana and (iii) Sub Divisional Engineer (Civil) Panchayati Raj in Development and Panchayats Department Haryana in response to advertisement No. 19/2025 that the Scheme/Pattern of exam is as under:-

Scheme/ Pattern of Exam :-

1. Screening Test

a) Total number of MCQs: 100
b) Total Marks : 100.
c) Time duration of the exam : 02 hours.
d) All questions carry equal marks.
e) Each question will have five options. The fifth option will be meant for a situation where a candidate intends to leave the question un-attempted.
f) One-fourth mark will be deducted for each wrong answer.
g) In case, a candidate neither attempts a question nor darkens the fifth option/bubble, then One-fourth mark will be deducted for each such question.
h) The medium of exam will be English and Hindi.
i) A candidate will have to secure a minimum of 25% marks to clear the screening test.
j) Candidates four times the number of advertised posts alongwith bracketed candidates. if any, will be called for the Subject Knowledge Test, provided that they have secured the minimum cut-off marks of 25%.
k) The marks obtained by the candidates in the screening test will not be counted for final selection because it is meant only for shortlisting of category-wise candidates.

Syllabus for the Screening Test is as under:-

General Science
Current Events of National and International Importance
History of India
Indian and World Geography
Indian Culture, Indian Polity and Indian Economy
General Mental ability (Reasoning and Analytical abilities)

Basic numeracy (numbers and their relations, order and magnitude etc, -Class X level), Data interpretation (charts, graphs, tables, data sufficiency etc. – Class X Level).

Haryana GK- History, Geography, Polity Economy, Culture etc.

2. Subject Knowledge Test

a) Time duration of exam: 03 hours
b) Total Marks: 150
c) The medium of exam will be English.
d) Paper will be subjective type.
e) No candidate will be called for the interview /viva-voce unless she/he secures a minimum of 35% marks in the Subject Knowledge test.

f) The number of the candidates called for interview will be two times, alongwith bracketed candidates if any, of the number of advertised posts provided that they have secured the minimum cut-off marks of 35%.
g) The weightage of the Subject Knowledge Test will be 87.5%.

Syllabus for the Subject Knowledge Test is as under:-

Structural Engineering

Engineering Mechanics: System of forces, free-body diagrams, equilibrium equations; Internal forces in structures: Frictions and its applications; Centre of mass; Free Vibrations of undamped SDOF system.

Solid Mechanics Bending moment and shear force in statically determinate beams, Simple stress and strain relationships; Simple bending theory, flexural and shear stresses, shear centre. Uniform torsion, Transformation of stress; buckling of column. combined and direct bending stresses.

Structural Analysis. Statically determinate and indeterminate structures by force/ energy methods. Method of superposition; Analysis of trusses, arches, beams, cables and frames, Displacement methods: Slope deflection and moment distribution methods; Influence lines. Stiffness and flexibility methods of structural analysis.

Construction Materials and Management: Construction Materials: Structural Steel Composition, material properties and behavior, Concrete Constituents, mix design. short-term and long-term properties. Construction Management Types of construction projects. Project planning and network analysis PERT and CPM; Cost estimation.

Concrete Structures: Working stress and Limit state design concepts: Design of beams. slabs, columns, Bond and development length; Prestressed concrete beams.

Steel Structures: Working stress and Limit state design concepts: Design of tension and compression members, beams and beam-columns, column bases, Connections - simple and eccentric, beam-column connections, plate girders and trusses; Concept of plastic analysis beams and frames.

Geotechnical Engineering

Soil Mechanics: Three-phase system and phase relationships, index properties, Unified and Indian standard soil classification system; Permeability one dimensional flow, Seepage through soils two dimensional flow, flow nets, uplift pressure, piping. capillarity, seepage force: Principle of effective stress and quicksand condition. Compaction of soils: One-dimensional consolidation, time rate of consolidation, Shear Strength, Mohr's circle, effective and total shear strength parameters, Stress-Strain characteristics of clays and sand: Stress paths.

Foundation Engineering: Sub-surface investigations Drilling bore holes, sampling. plate load test, standard penetration and cone penetration tests; Earth pressure theories. Rankine and Coulomb: Stability of slopes Finite and infinite slopes. Bishop's method: Stress distribution in soils Boussinesq's theory: Pressure bulbs. Shallow foundations - Terzaghi's and Meyerhoff's bearing capacity theories, effect of water table; Combined footing and raft foundation; Contact pressure; Settlement analysis in sands and clays; Deep foundations dynamic and static formulae, Axial load capacity of piles in sands and clays, pile load test, pile under lateral loading, pile group efficiency, negative skin friction.

Water Resources Engineering

Fluid Mechanics: Properties of fluids, fluid statics, Continuity, momentum and energy equations and their applications; Potential flow, Laminar and turbulent flow: Flow in pipes, pipe networks, Concept of boundary layer and its growth; Concept of lift and drag.

Hydraulics: Forces on immersed bodies; Flow measurement in channels and pipes; Water Resources Engineering Dimensional analysis and hydraulic similitude, Channel Hydraulics Energy-depth relationships, specific energy, critical flow, hydraulic jump, uniform flow, gradually varied flow and water surface profiles.

Hydrology: Hydrologic cycle, precipitation, evaporation, evapo-transpiration, watershed, infiltration, unit hydrographs, hydrograph analysis, reservoir capacity, flood estimation and routing. surface run-off models, ground water hydrology steady state well hydraulics and aquifers: Application of Darcy's law.

Irrigation: Types of irrigation systems and methods; Crop water requirements - Duty. delta, evapo-transpiration; Gravity Dams and Spillways; Lined and unlined canals, Design of weirs on permeable foundation; cross drainage structures

Environmental Engineering

Water and Waste Water Quality and Treatment: Basics of water quality standards - Physical, chemical and biological parameters; Water quality index: Unit processes and operations. Water requirement. Water distribution system; Drinking water treatment.

Sewerage system design, quantity of domestic wastewater, primary and secondary treatment. Effluent discharge standards; Sludge disposal, Reuse of treated sewage for different applications.

Air Pollution: Types of pollutants, their sources and impacts, air pollution control, air quality standards. Air quality Index and limits.

Municipal Solid Wastes: Characteristics, generation, collection and transportation of solid wastes, engineered systems for solid waste management (reuse/recycle, energy recovery, treatment and disposal).

Transportation Engineering

Transportation Infrastructure: Geometric design of highways cross-sectional elements, sight distances, horizontal and vertical alignments.

Geometric design of railway Track - Speed and Cant.

Concept of airport runway length, calculations and corrections, taxiway and exit taxiway design.

Highway Pavements: Highway materials desirable properties and tests; Desirable properties of bituminous paving mixes: Design factors for flexible and rigid pavements. Design of flexible and rigid pavement using IRC codes

Traffic Engineering: Traffic studies on flow and speed, peak hour factor, accident study, statistical analysis of traffic data; Microscopic and macroscopic parameters of traffic flow, fundamental relationships; Traffic signs; Signal design by Webster's method; Types of intersections: Highway capacity.

Geomatics Engineering

Principles of surveying, Errors and their adjustment; Maps scale, coordinate system: Distance and angle measurement - Leveling and trigonometric leveling: Traversing and triangulation survey, Total station: Horizontal and vertical curves.

Photogrammetry and Remote Sensing - Scale, flying height; Basics of remote sensing and GIS.

3. Interview

The weightage of the interview will be 12.5%.

4. The final merit list will be prepared by adding the marks of the Subject Knowledge Test and interview.

Note:- Attendance in all three stages is mandatory.

Dated:- 22/8/2025

Deputy Secretary
Haryana Public Service Commission
Panchkula