HINDUSTAN PETROLEUM CORPORATION LIMITED

HP GREEN R&D CENTRE, BENGALURU

Recruitment of Fixed Term Project Associate (FTPA)-2025

Updates on Computer Based Test (CBT) scheduled on 12.10.2025 (Sunday)

Reference to our advertisement for Engagement of **Fixed Term Project Associate (FTPA)** at HPCL Green R&D Centre Bengaluru, a **Computer Based Test (CBT)** will be conducted on **12th October 2025 (Sunday).** Below are the updates:

1. Link for accessing Practice Test:

https://hpclpracticetest.onlineapplicationform.org/HPCL/SyllabusSelection.htm

2. Syllabus for Computer Based Test (CBT) on 12.10.2025 (Sunday)

Computer Based Test (CBT) (written test) for candidates of FTPA will be held on **12.10.2025 (Sunday).**

1. Time duration of examination: **2 hours** (11.00 a.m to 01.00 p.m.)
2. Marks per question : **1 mark**
3. Type of question: **MCQs**
4. Negative marking : - **0.25 for each wrong answer**
5. Minimum qualifying marks in CBT:
    a. 50% marks in Domain for all Categories and 60% overall marks (Domain + General Aptitude) for **UR** candidates
    b. 50% marks in Domain for all Categories and 54% overall marks (Domain + General Aptitude) for **SC/ST/OBC-NC/PWD** candidates

Following is the brief Syllabus for the CBT.

NOTE: The syllabus/topics mentioned are indicative in nature. Candidates are expected to possess significant knowledge/proficiency pertaining to the relevant subjects.

General Aptitude 30 marks: English Verbal, Analytical Reasoning, Numerical Ability

Domain 70 marks for respective streams:

PA - Polymer / Plastic	Introduction to Polymers; Polymerization Techniques; Types of Polymers – structure property Relationship; Natural vs. Synthetic Polymers; Polymer Processing Techniques; Properties of Polymers -Testing & Characterization method, Standards, SOP & instruments used; Polymer Degradation and Environmental Impact

PA – Chemistry / Material Sciences	**Inorganic Chemistry:** Periodic trends, structure, and bonding in molecules (VSEPR, acids/bases), synthesis and properties of main group elements and transition metals, coordination compounds, organometallics (synthesis, bonding, catalysis), analytical techniques (IR, Raman, NMR, EPR, UV-vis, MS), nuclear chemistry, and radio-analytical techniques. **Physical Chemistry:** Quantum mechanics, atomic and molecular spectroscopy, group theory, thermodynamics, statistical mechanics, electrochemistry, kinetics, colloids and surfaces, solid-state chemistry, polymer chemistry, and data analysis. **Organic Chemistry:** IUPAC nomenclature, stereochemistry, reactive intermediates, reaction mechanisms (addition, elimination, substitution), named reactions, organic transformations, asymmetric synthesis, pericyclic and photochemical reactions, natural product chemistry, and structure determination techniques (IR, UV-Vis, NMR, MS).
PA – Automobile & Mechanical Engg.	**Thermodynamics:** Introduction to systems, laws of thermodynamics, heat and work interactions, heat engines, heat pumps, refrigerators, Carnot cycle, and entropy; **Heat Transfer & Thermal Power Plants:** Modes of heat transfer, Rankine cycle, boilers (Babcock & Wilcox, Cochran), and thermal power plant layout ; **Internal Combustion Engines:** Carnot, Otto, Diesel cycles, engine components, working of four- stroke and two-stroke engines, valve timing, fuel systems, cooling, ignition, lubrication, and governing systems. Power, efficiency, performance testing, and simple numerical problems; **Basic Automobile Engineering:** Overview of engines, transmission, brakes, steering, fuel types, manual vs. automatic transmission, and safety features.
PA – Chemical & Petroleum Refining	**Thermodynamics:** Introduction to systems, laws of thermodynamics, heat and work interactions; **Chemical Safety:** Hazard Identification: risk assessment, hazard analysis techniques, Personal Protective Equipment, Process Safety; **Fluid Mechanics:** Fluid properties, fluid statics, and fluid dynamics. Laminar and turbulent flow, flow in pipes and channels. Dimensional Analysis, Boundary Layer Theory; **Heat Transfer:** Conduction, convection, and radiation, Heat Exchangers; Mass Transfer: Diffusion, mass transfer coefficients, Vapor-liquid equilibria, distillation columns, design and operation, Absorption; **Process Calculation:** Material Balances, reactive and non-reactive systems, Energy Balances, enthalpy calculations. Stoichiometry,

	limiting reactants, yield.; Process Engineering: Process Design: Flow sheet, Process Control; **Reaction Engineering: Reaction Kinetics:** Rate laws, reaction mechanisms, Batch, continuous stirred tank, and plug flow reactors, Catalysis
PA – Bio Sciences, Bio Technology, Microbiology	Introduction to Biochemistry; Macromolecules and their qualitative and quantitative analysis; Biochemical Techniques; Bioanalytical Techniques; Microbiology; Molecular Biology; Basics of Cell Biology