



RECRUITMENT OF TECHNICIANS – HPCL - MUMBAI REFINERY

Important Information - About Computer Based Test (CBT)

Online Examination date and Pattern :

1. The computer based test (CBT) is scheduled to be held on Sunday, 15TH October, 2017.
2. Duration of the examination will be 2 Hours.
3. Total number of questions in the examinations are 100.
4. All questions of the Computer Based Test are of objective type (multiple choice questions with only one correct choice of answer). Each correct answer carries 1 mark and there is no negative Marking.
5. Question paper will be in two Parts and in Bilingual – Hindi & English
 - Part I - General Aptitude Test - 50 Marks
 - Part II - Technical / Professional Knowledge - 50 Marks
6. Calculators are not allowed into the examination hall.
7. Extra time will be allowed for PWD candidates in the examination i.e 20 min/hour.

Assistant Process Technician – Exam Syllabus

S No	Topic	Sub-topic
1	Industrial Chemistry	Classification of organic compounds
		Surface chemistry
		Chemical thermodynamics
		Material science
		Engineering materials
2	Mechanical Engineering	Strength of materials
		Mechanical systems and friction
		Basics of thermodynamics and refrigeration
		Steam boilers, steam turbines and I.C. Engines
		Fuels, nanotechnology and robotics
3	Electrical and Electronics Engineering	Basics in electric current
		A.C. Circuits
		Electrostatics and electromagnetism
		D.C. Machines, A.C. Machines and transformers
		Basic electronics
4	Mechanical operations	Size reduction and conveying
		Separation of solid-solid and solid-gas systems
		Separation of solid liquid systems
		Special separation methods
		Mixing and agitation

5	Momentum transfer	Fluid statics
		Fundamentals of fluid dynamics
		Flow of incompressible fluids in pipes
		Transportation of liquids
		Transportation of gases, piping's and valves
6	Inorganic chemical technology	Water treatment
		Alkalies and industrial gases
		Fertilizers
		Glass, cement and paint
		Acid industries
7	Heat transfer	Conduction
		Convection and radiation
		Principles of heat flow in fluids and heat exchangers
		Evaporation
		Multiple effect evaporators and insulation
8	Chemical process calculations	Fundamentals of process calculations
		Material balance without chemical reaction
		Material balance with chemical reaction
		Energy balance
		Chemical kinetics
	Process instrumentation and	
9	control	Basic concepts of measurement and measurement of temperaure
		Measurement of pressure
		Measurement of flow, liquid level and humidity
		Process control
		Computerized process control
10	Organic chemical technology	Oils, fats and detergents

		Petroleum processing
		Petrochemical technology
		Polymer processing
		Biotechnology and fermentation
	Industrial safety and pollution control	
11		Industrial accident and safety
		Fire and explosion
		Process plant hazards
		Pollution control
12	Mass transfer	Fundamentals of distillation
		Design and techniques of distillation column
		Solvent extraction
		Absorption
		Humidification and drying
		Crystallization

Assistant Boiler Technician – Exam Syllabus

S No	Topic	Sub-topic
1	Strength of Materials	Properties of Materials
		Effect of Alloying element
		Problem in Elastic constant
		Problem in Composite bar
		Solid Shaft and Hollow shaft
2	Fluid mechanics and Fluid power	Properties of Fluids
		Hydrostatic Force
		Condition of Stability
		Fluid kinematics
		Pipe Flow
3	Thermal Engineering - I	Laws of thermodynamics
		Thermodynamic Process
		Component of Engines
		Thermodynamic properties
		Boiler mountings and accessories
		High pressure boiler
4	Thermal Engineering - II	I C Engine
		Compressor
		Turbine
		Nozzle
5	Power Plant Engineering	Thermal Power Plant
		Nuclear Power Plant

6	Design of Machine Elements	Belt, Chain & Gear Drive
		Clutch, Brake
		Bolt, Nut, Screw, Coupling
7	Refrigeration and Air conditioning	COP
		Psychometric Properties
		Psychometric Processes
		Refrigerant
		Vapour Compression System
8	Industrial Engineering and Management	Break even analysis
		Standard time
		Flow process chart
9	Manufacturing Technology-1	Heat Treatment
		Types of Casting Process
		Welding Flame
		Welding Application
		Forming Application
10	Manufacturing Technology-2	Taper Turning
		Lathe operation
		Mechanism in machine tool
		Shaper
11	METROLOGY	Tolerance
		Fits
		Properties of Measuring Instruments