

Assistant Manager / Refinery Engineers

Test Structure

No. of Questions	Total Marks	Time Duration
100	100	120 mins

Syllabus Overview

Electrical Engineering	
S.No.	Topics
1.	Electrical Machines (Induction Motors, Synchronous Motors, Alternators, Transformers etc)
2.	Switchgear and Protection (Relay Types, Relay Coordination etc)
3.	Power Electronics (VFDs, Soft starters etc)
4.	Cables (Cable Types, Properties etc)
5.	Lighting (Lux, Lumen, Illumination etc)
6.	Battery/Battery charger
7.	Electrical Safety
8.	General Electrical Engineering Fundamentals (Earthing, Capacitor, Inductor, Insulation, Insulation testing methods etc)
9.	Electrical related codes and standards (BIS, OISD, etc).

Design/Construction Engineer	
S.No.	Topics
1.	Metallurgy
2.	Piping, Flanges, Valves and related equipment
3.	Rotary Equipment (Pumps, Compressors, Gas Turbines etc)
4.	Heat Exchangers
5.	Manufacturing and Machining Processes (Welding, Drilling, Grinding etc)
6.	Tanks and Vessels
7.	Testing Methods (PWHT, Radiography, Destructive/Non-Destructive testing methods etc)
8.	Mechanical related codes and standards (BIS, OISD, ISBM, ASTM etc)

Instrumentation Engineer	
S.No.	Topics
1.	Principle, calibration and troubleshooting – Measurement and Control field instrumentation for process variables such as flow, temperature, pressure, level etc.
2.	Online Process analyzers, stack emission analyzers and Gas detectors.
3.	Distributed Control Systems (DCS) and Programmable Logic Controllers (PLC).
4.	Communication system and protocols.
5.	Calculation of basic measurement elements, emergency systems, logic diagrams, P & IDs, statutory/safety requirements etc.
6.	Hazardous and Electrical Area Classification – Engineering codes, standards, specifications – ANSI, ASME, API, ISO, IEEE, IEC etc and OISD guidelines.

Production Engineer	
S.No.	Topics
1.	Basic heat & mass transfer
2.	Basic fluid dynamics and transportation
3.	Petroleum refinery products, their specifications
4.	The parameters affecting the product specifications
5.	Crude oil contaminants and removal process
6.	Primary and secondary processes in refinery
7.	Hydrocarbon chain molecules
8.	DM water treatment
9.	Refinery safety
10.	Basic Process Instrumentation, refinery drawing nomenclatures

Inspection Engineer	
S.No.	Topics
1.	Proficiency in Inspection Codes and Standards Pressure Vessels, Pipes and Tankages
2.	Metallurgy Selection
3.	Core Inspection Techniques
4.	Non-Destructive Techniques
5.	Corrosion and Basic Engineering

Civil Engineer	
S.No.	Topics
1.	Basics of Civil Engineering
2.	Construction Management for Civil Engineering
3.	Mechanics
4.	Soil Investigation and Foundation Engineering
5.	Concrete Technology
6.	Water Management
7.	Hydrology
8.	Solid Waste Management and Environment
9.	Safety in Civil Construction

Note: The Syllabus/Topics mentioned are indicative in nature. Candidates are also expected to possess significant Knowledge/Proficiency pertaining to their Qualifying Degree/Post-Graduation degree