

Syllabus Overview

Recruitment of Technicians & Craftsman in various departments
(Operations, Boiler, Maintenance & Laboratory)

Sl no.	Positions
1	<u>Jr. Admin Assistant</u>
2	<u>Boiler Attendant</u>
3	<u>Craftsmen - Maint. Mech. (Chem. Plant)</u>
4	<u>Laboratory Analyst (4 pages)</u>
5	<u>Technician – Boiler</u>
6	<u>Technician - Mechanical</u>
7	<u>Technician - Electrical</u>
8	<u>Technician – Instrumentation</u>
9	<u>Technician – Operations</u>

Disclaimer

The topics mentioned are only indicative and cover the broad areas for the Computer Based Test and in line with requirement of position.

Syllabus Overview – General Aptitude

(Common for all positions)

I	Verbal Ability
II	Quantitative Ability
III	Intellectual Potential Test

Disclaimer

The topics mentioned are only indicative and cover the broad areas for the Computer Based Test and in line with requirement of position.

Syllabus Overview – Jr. Admin Assistant

S. No.	Topics
I	English Language
II	Quantitative Aptitude Test
III	Intellectual Potential Test

Syllabus Overview – Boiler Attendant

S. No.	Topics
1	General construction of steam generating boiler, It's components, accessories & mountings
2	Type of boilers by design construction, by installation orientation, by heat input mechanism
3	Operating principles of all types of boilers
4	Key control system and its interrelation
5	Operation of Demineralization plant
6	Draft creating and draft control systems for boiler
7	Firing systems and its control modalities
8	Trouble shooting of operational deviation
9	Fundamentals of water chemistry and water treatment systems for boiler water, steam etc
10	IBR rules and regulations
11	Fundamentals of centrifugal pump operation
12	General knowledge on boiler associated systems and equipment
13	Boiler performance measuring parameters and its units
14	Flue gas analysis controlling devices
15	Types of fuel and its properties (ultimate & proximate)

Disclaimer

The topics mentioned are only indicative and cover the broad areas for the Computer Based Test and in line with requirement of position.

Syllabus Overview – Craftsmen-Maint. Mech. (Chem. Plant)

S. No.	Topics
1	Physics: Gas Law
2	Physics: Static and kinetic friction
3	Physics: Elasticity
4	Physics: Thermal conductivity
5	Physics: Laws of thermodynamics
6	Fitting: Machining
7	Fitting and Maintenance: Pumps and compressors
8	Fitting and Maintenance: Valves
9	Fitting and Maintenance: Centrifugal pump and compressor
10	Fitting and Maintenance: Blowers and fans
11	Fitting and Maintenance: Gears
12	Bearings type and construction
13	Alignment
14	Engineering Drawing
15	General safety
16	Safety precautions in work shop

Disclaimer

The topics mentioned are only indicative and cover the broad areas for the Computer Based Test and in line with requirement of position.

Syllabus Overview – Laboratory Analyst

S. No.	Topics
I	PHYSICS
1	MECHANICS
2	WAVES & OSCILLATIONS
3	THERMODYNAMICS
4	OPTICS
5	ELECTRICITY & MAGNETISM
6	MODERN PHYSICS & ELECTRONICS
II	MATHEMATICS
1	DIFFERENTIAL EQUATIONS
2	3 DIMENSIONAL GEOMETRY & SOLID GEOMETRY
3	REAL NUMBERS, SEQUENCES & SERIES
4	REAL ANALYSIS
5	VECTOR DIFFERENTIATION - VECTOR CALCULUS
6	GROUP THEORY & NUMBER THEORY
7	RINGS, INTEGRAL DOMAINS & FIELDS
8	VECTOR SPACES
9	INNER PRODUCT SPACES
10	MATRICES

Syllabus Overview – Laboratory Analyst

S. No.	Topics
III	TOPIC - CHEMISTRY
A	INORGANIC CHEMISTRY
1	PERIODIC PROPERTIES
2	ALKALI METALS (GROUP IA ELEMENTS)
3	ALKALINE EARTH METALS (GROUP IIA ELEMENTS)
4	BORON FAMILY (GROUP IIIA ELEMENTS)
5	CARBON FAMILY (GROUP IVA ELEMENTS)
6	NITROGEN FAMILY (GROUP VA ELEMENTS)
7	OXYGEN FAMILY (GROUP VIA ELEMENTS)
8	HALOGENS (GROUP VIIA ELEMENTS)
9	TRANSITION ELEMENTS
10	LANTHANIDES & ACTINIDES
11	ZERO GROUP ELEMENTS
12	HYDROGEN AND ITS COMPOUNDS
13	METALLIC BOND, METALLURGY AND ALLOYS
14	ORGANOMETALLIC COMPOUNDS
15	CO-ORDINATION COMPOUNDS
16	NUCLEAR CHEMISTRY

Syllabus Overview – Laboratory Analyst

S. No.	Topics
B	ORGANIC CHEMISTRY
1	STRUCTURE OF ORGANIC MOLECULES & THEIR REACTION MECHANISMS
2	NOMECLATURE OF ORGANIC COMPOUNDS
3	STEREO CHEMISTRY
4	ALKANES ; CYCLO ALKANES
5	ALKENES & ALKADIENES ; ALKYNES
6	AROMATIC HYDROCARBONS
7	HALOGEN COMPOUNDS
8	ALDEHYDES & KETONES
9	ALCOHOLS ; PHENOLS
10	CARBOXYLIC ACIDES ; ETHERS
11	ACTIVE METHYLENE COMPOUNDS (ESTERS)
12	NITROGEN COMPOUNDS
13	AMINO ACIDS
14	HETERO CYCLIC COMPOUNDS ; CARBOHYDRATES
15	ALKALOIDS & TERPENES
16	NAMED & IMPORTANT ORGANIC REACTIONS

Syllabus Overview – Laboratory Analyst

S. No.	Topics
IV	PHYSICAL CHEMISTRY
1	STRUCTURE OF ATOM
2	THEORY OF CHEMICAL BONDING
3	GASEOUS STATE (KINETIC MOLECULAR THEORY OF GASES)
4	SOLUTIONS
5	LIQUID STATE (BINARY LIQUID MIXTURES)
6	COLLIGATIVE PROPERTIES OF DILUTE SOLUTIONS
7	THE SOLID STATE
8	CHEMICAL EQUILIBRIUM ; CHEMICAL KINETICS
9	CHEMICAL THERMODYNAMICS (CHEMICAL ENERGETICS)
10	ELECTRO CHEMISTRY
11	PHASE RULE
12	PHOTO CHEMISTRY

Disclaimer

The topics mentioned are only indicative and cover the broad areas for the Computer Based Test and in line with requirement of position.

Syllabus Overview – Technician Boiler

S. No.	Topics
1	General construction of steam generating boiler
2	Components, accessories, mountings
3	Type of boilers by design construction, by installation orientation, by heat input mechanism
4	Operating principles of all types of boilers
5	Key control system and its interrelation
6	Trouble shooting of operational deviation
7	Fundamentals of water chemistry and water treatment systems for boiler water, steam etc
8	Operation of Demineralization plant
9	Draft creating and draft control systems for boiler
10	Firing systems and its control modalities
11	Types of fuel and its properties (ultimate & proximate)
12	IBR rules and regulations
13	Flue gas analysis controlling devices
14	Fundamentals of centrifugal pump operation
15	Boiler performance measuring parameters and its units
16	General knowledge on boiler associated systems and equipment

Disclaimer

The topics mentioned are only indicative and cover the broad areas for the Computer Based Test and in line with requirement of position.

Syllabus Overview – Technician Mechanical

S. No.	Topics
1	Mechanics: Heat Transfer
2	Engineering Drawing: Projections
3	Engineering Drawing: Isometric View
4	Workshop Practice: Welding
5	Material Science: General
6	Thermodynamics I: Basic Concepts and Gas Laws
7	Thermodynamics I: Laws of Thermodynamics and Processes
8	Thermodynamics I: Power Cycles
9	Strength of Material: Stresses & Strain
10	Work Shop Technology I: Turning
11	Fluid Mechanics: Introduction
12	Fluid Mechanics: Flow of Liquids
13	Fluid Mechanics: Hydraulic Turbines
14	Fluid Mechanics: Pumps
15	Thermodynamics II: Principles of I.C. Engines
16	Thermodynamics II: Air Compressors
17	Thermodynamics II: Nozzles and Steam Turbines
18	Theory of Machines: Power Transmission

Disclaimer

The topics mentioned are only indicative and cover the broad areas for the Computer Based Test and in line with requirement of position.

Syllabus Overview- Technician Electrical

S. No.	Topics
1	Basic electrical engineering & safety.
2	Power system & Network theorems
3	Electrostatics & Electromagnetism
4	Machines & transformer
5	Electronics : Basic/Power/Digital
6	Illumination
7	Measurements

Disclaimer

The topics mentioned are only indicative and cover the broad areas for the Computer Based Test and in line with requirement of position.

Syllabus Overview – Technician Instrumentation

S. No.	Topics
1	Basics of Circuits and Measurement Systems
2	Transducers and Industrial Instrumentation
3	Analog Circuits
4	Digital Circuits
5	Signals, Systems and Communications
6	Electrical and Electronics Measurements
7	Control Systems and Process Controls
8	Analytical Instrumentation

Disclaimer

The topics mentioned are only indicative and cover the broad areas for the Computer Based Test and in line with requirement of position.

Syllabus Overview – Technician Operations

S. No.	Topics
1	Process Calculations and Thermodynamics
2	Fluid Mechanics and Mechanical Operations
3	Heat Transfer
4	Mass Transfer:
5	Chemical Reaction Engineering
6	Instrumentation and Process Control
7	Plant Design and Economics
8	Chemical Technology
9	Chemical Kinetics
10	General Safety
11	Organic Chemistry
12	Inorganic Chemistry
13	Physical Chemistry

Disclaimer

The topics mentioned are only indicative and cover the broad areas for the Computer Based Test and in line with requirement of position.