INDICATIVE SYLLABUS FOR THE POST OF ASSISTANT MANAGER (MATERIALS)

1. Production Function
2. Micro Economics, applied to plant and industrial undertaking
3. Process Planning
4. Manufacturing Schedule
5. Replacement Analysis
6. Purchasing or Procurement
7. Purchase Organisation
8. Buying Techniques
9. Quantity and Quality Standards
10. The Purchasing Procedure
11. Accounting
12. Stores, Material Control & Scrap Disposal
13. Receipts and Issue of Materials
14. Store Records
15. Codification of Material
16. Physical Verification of Stores
17. Inventory Control
18. Inventory Classification
19. Inventory Management
20. Objectives of Inventory Control
21. Functions of Inventories
22. Economic Order Quantity
23. Inventory Models
24. ABC Analysis
25. Material Requirements Planning
26. Manufacturing Resources Planning
27. Operation Cycle

INDICATIVE SYLLABUS FOR THE POST OF ASSISTANT MANAGER (R&D)

1. B.E. (MECHANICAL)

1. Engineering Mathematics/Physics/Chemistry
2. Elastic properties of materials.
3. Systems in mechanical engineering
4. Basic Electrical / Electronics engineering, Program & problem solving
5. Engineering mechanics
6. Solid mechanics.
7. Solid modeling and profiling
8. Engineering thermodynamics
9. Engineering materials & metallurgy
10. Electrical and electronics engineering
11. Applied thermodynamics
12. Fluid mechanics.
13. Manufacturing process
14. Kinematics of machinery, Heat transfer, Numerical methods & optimization
15. Mechatronics
16. Dynamics of machinery

2. B.E. (ELECTRICAL)

1. Static electricity, Concept of charge, Electric field& potential, electric flux and Gauss law, Capacitance.
2. Current electricity: Resistance as an intrinsic property of material, Drift velocity, Ohm's law, Calculations based on simple D.C circuits & circuit elements, Wheat stone bridge, Kirchoff's laws, Maxwell's cyclic currents, Thevenin's principle, potentiometers etc.
3. Electrolytes and galvanic cells including simple mathematical calculations.
4. Growth & decay of D.C.
5. Magnetic effects of electric current including Biot-Savart's law, Gauss law etc., Motion of charged particle in electro-magnetic fields, electromagnetic induction, Alternating currents.
6. Band theory of solids, elementary electronics including p-n junction diode, depletion zone, junction potential, V-I curve for diode, Zenner diode, transistors& characteristics curves, amplifiers, rectifiers.
7. Elementary idea about Boolean algebra and Logic gates.
8. General Physics, chemistry.
9. Advanced mathematics.
10. Analogue and digital electronics, Diodes, amplifiers, oscillations, control system
11. Electrical circuits and fields, Transformers, AC & DC motors, Generators
12. Electrical & Electronic measurements, Bridges, Potentiometers, Dynamometers, Voltmeters, Ammeters and millimeters, Q-meters, Oscilloscope.

13. Electrical circuit theory, Electrical material science, Electrical machine design
14. Electronics, Electronics instrumentation, signals &systems
15. Field theory, High voltage engineering, Non-conventional energy sources
16. Numerical analysis & optimization techniques
17. Power Systems.
18. Power electronics & drives, Semiconductors, Power diodes, Transistors etc.
19. Strength of materials

3. **M.Sc. (CHEMISTRY)**

1. Chemical Arithmetic: Mole Concept, Stoichiometry based calculations, Empirical and Molecular formula, Equivalent weight, isomorphism, Volumetric analysis and calculations.
2. Atomic structure, Elementary Quantum Mechanics, Periodic table & periodic properties Group theory, Lanthanides, actinides and rare earths, chemical bonding, Nuclear Science & Radioactivity, Mass defect. Radio analytical &Electro analytical methods.
3. Surface tension and viscosity of liquids, Properties of gases and gas laws, Solid state chemistry & Geometry of crystals.
4. Thermodynamics
5. Chemical Kinetics, chemical equilibria, theories of acids & bases and acid-base titrations, ionic equilibrium, Electrochemistry.
6. Phase equilibria, colligative properties, ideal& non ideal solutions, Fugacity.
7. Oxidation & reduction processes.
8. Coordination complexes including IUPAC nomenclature and Isomerism (including stereo isomerism), complexometric titrations.
9. Inorganic salt analysis.
10. IUPAC nomenclature and isomerism (including stereo isomerism) of organic compounds.
11. Organics reaction mechanisms, theory of aromaticity.
12. Organic inter-conversions of compounds (aliphatic, alicyclic, aromatic), organic reactions, Organic analysis: elemental detection, identification of various functional groups
13. Elementary polymer chemistry.
14. Principles of spectroscopy, basic ideas of molecular spectroscopy, Raman, Nuclear magnetic resonance and UV-vis spectroscopy, y-ray spectroscopy, mass- spectroscopy, ESR spectroscopy, atomic absorption spectroscopy, Spectroscopy applications.

4. B.E. (CHEMICAL)

1. General mathematics, Physics, Chemistry
2. Nanotechnology.
3. Process design, control development.
4. Thermodynamics.
5. Engineering chemistry.
6. Metallurgy, electrochemistry.

7. Applied mathematics,
8. Chemical engineering thermodynamics.
9. Chemical technology.
10. Chemical reaction Engineering.
11. Heat &mass transfer.
12. Environmental engineering.
13. Process engineering.
14. Modelling, simulation & optimization process dynamics and control
15. Chemical engineering lab practice

5. B.E (PULP & PAPER)

1. Process plant utilities, water, steam, Refractories, Insulation, Refrigerants and cooling water
2. Process instrumentation and control
3. Pollution control in chemical process Industry.
4. Paper properties and conversion.
5. Stock preparation
6. Paper making process.
7. Chemical recovery
8. Mass transfer
9. Chemical engineering thermodynamics and Reaction engineering
10. Heat transfer
11. Fluid flow.
12. Mechanical operations
13. Chemical process calculations.
14. Pulping processes (washing, cleaning and Bleaching)
15. Applied mathematics
16. Applied physics
17. Applied chemistry
18. Applied mechanics

6. B.E.(METALLURGY)

1. General Physics, chemistry, engineering mathematics, engineering thermodynamics
2. Introduction to metallurgy and materials engineering
3. Manufacturing.
4. Metallurgical thermodynamics and kinetics.
5. Mathematical models
6. Numerical techniques
7. Structure of materials
8. Principle of extractive metallurgy
9. Fundamentals of electronics & instrumentation engineering

10. Modelling and simulation in metallurgy
11. Deformation and testing of materials
12. Materials processing technology, corrosion and prevention
13. Mechanical behavior of materials

7. <u>B.E (ELECTRONICS)</u>

1. General mathematics, Physics, Chemistry
2. Applied mathematics, Applied chemistry, Applied physics
3. Engineering mechanics basic electrical engineering
4. Structural programming approach, electronic devices and digital system
5. Microprocessor and applications.
6. Design circuit theory and network
7. Laboratory design system, design principle of communication, control systems electronic devices and circuits
8. Micro controllers and applications
9. Advance instrumentation systems, basic VLSI design
10. Modern information technology for measurement
11. Laboratory design with linear integrated circuits
12. Digital signal processing and process embedded system design.

INDICATIVE SYLLABUS FOR THE POST OF ASSISTANT MANAGER (HR)

- Human Resource Management
- Human Resource Planning
- Recruitment & Selection
- Human Resource Development: Strategies and Systems
- Performance Management & Appraisal
- Competency Mapping
- Training and Development
- Management of Compensations and Benefits
- Rewards & Recognition
- Organizational Structure Design and Change
- Management Process and Organizational Behavior
- Management of Change and Organization Effectiveness
- Managing Interpersonal and Group Processes
- Emotional Intelligence and Managerial Effectiveness
- Transactional Analysis
- Industrial Relations & Trade Unions
- Labour Laws
- Conflict Management
- Collective Bargaining and Negations process
- Grievance Management
- Management Science
- Business Policy and Strategic Analysis
- Corporate Evolution and Strategic Management
- Cross Cultural and Global Management

- International Business Environment
- Business Ethics, Corporate Governance & Social Responsibility
- Understanding Society and Social Structure
- Managerial Economics
- Financial Management and Accounting
- Marketing Management
- Quantitative Methods & Research Methodology
- Production and Operations Management
- Marketing Research
- Computer Applications in Business
- Management Information Systems
- Human Resource Information System
- Total Quality Management

INDICATIVE SYLLABUS FOR THE POST OF ASSISTANT MANAGER (LEGAL)

- Companies Act, 2013
- The Arbitration and Conciliation Act of 1996 along with the Arbitration and Conciliation Amendment Act, 2015
- The Indian Contract Act, 1872
- Transfer of Property Act, 1882
- The Code of Civil Procedure, 1908
- The Constitution of India
- The Industrial Disputes Act, 1947
- The Factories Act, 1948
- The Payment of Wages Act, 1936
- The Minimum Wages Act, 1948
- The Contract Labour (Regulation & Abolition) Act, 1970
- The Employees Provident Fund & Miscellaneous Provisions Act, 1952
- The Employees Compensation Act, 1923
- The Employees State Insurance Act, 1948
- Maternity Benefit Act, 1961
- The Payment of Gratuity Act, 1972
- The Payment of Bonus Act, 1965
- Rules of Drafting and Conveyancing
- CCS(CCA) Rules on service matters