

VSSC Scientist/ Engineer Exam Pattern

Paper	Subject	Number of Questions	Maximum Marks	Time Duration
1	Concerned Subject	50	200	90 Minutes

VSSC Scientist/ Engineer Syllabus - Topic Wise

Automobile Engineering:

- Autotronics
- Automotive Engines
- Automotive chassis
- Automotive pollution and control
- Engine and vehicle components design
- Vehicle control system
- Vehicle Dynamics
- Flow and Combustion Analysis in IC Engines

Aeronautical Engineering:

- Aerospace Propulsion
- Theory of Elasticity
- Rocketry and space mechanics
- Airplane performance, stability, and control
- Flight Vehicle Aerodynamics
- Aerodynamics
- Advanced Propulsion systems
- Computational fluid dynamics in Aerospace engineering
- Aircraft design
- Flight Mechanics

Chemical Engineering:

- Catalytic reaction
- Transition state theory
- Streamline flow
- Isothermal gas-phase reaction
- Shear stress
- Mass transfer operation
- Distillation process
- Transfer function
- Bode stability criterion

- Two, Three and Four Lead Circuit
- Speed of response
- Reproducibility
- Lag, Fidelity
- Fluxing agents in ceramic manufacture
- Fire-tube boilers
- Threshold Point, Optimum Point
- Break-even Point
- Saturation Point
- Sphericity
- Clarifying Filter, Cake Filter, Crossflow filter
- Enthalpy
- Joule Thomson expansion

Chemistry/ Polymer Chemistry:

- Size of orbitals
- Oxidizing and Reducing Agent
- Isomers
- Radioactivity & Half-life period
- Sequence of reactions
- Electronic Spectroscopy
- Mark-Hauwink Equation
- Carothers Theory
- Flory-Huggins Theory
- Chemical names of melanin etc
- Van't Hoff Factor
- PH Value
- Electrolytes and Coagulating agents
- Quantum Numbers
- Mole fraction
- Kinetic energy
- Co-efficient of Viscosity
- Polymerization
- Rate Constant
- Boltzmann Distribution Law
- Gaussion distribution
- Metal-Metal Bond
- Dalton's law, Henry's law, Gay Lussac's Law, Raoult's Law

Electrical Engineering

- Basic concepts.
- Circuit law.
- AC Fundamentals.
- Basic Electronics.

- Transmission and Distribution.
- Estimation and Costing.
- Utilization and Electrical Energy.
- Measurement and Measuring Instruments.
- Electrical Machines.
- Fractional Kilowatt Motors.
- Single-phase induction Motors.
- Synchronous Machines.
- Magnetic Circuit.
- Generation.

Mechanical Engineering:

- Introduction to mechanical design
- Engineering Mechanics
- Mechanics of Machines
- Thermodynamics
- Moment of Inertia
- Bernoulli's equation
- Young's Modulus
- Bulk Modulus
- Shear Modulus
- Thermal power plants
- RMS value
- Refrigeration system
- The advanced design of Mechanical System
- Mechatronics

Machine Design/ Structural Engineering:

- Brittle and Ductile failure
- Airy's Stress function
- Poisson's ratio
- Shear, Bending, Tensile stress
- Analytical, Empirical, Numerical, graphical method
- Principle of Superposition
- Torsional strain energy
- Young's modulus
- Theories for ductile materials
- Castigliano's Theorem
- D'Alembert's principle
- Modulus of elasticity
- Kirchoff's plate theory
- Von Karman Plate theory
- Mindlin Reissner plate theory

Electronics & Communication Engineering:

- Logic Gates & Circuits
- Binary, Octal and Hexadecimal code
- Induction Motor
- Impedance
- Transformers
- Triode, BJT, MOSFET, Transistor, Amplifier
- Sampling Theorem
- RC, RLC Circuit
- Bandwidth of amplifier
- RMS Voltage
- Barkhausen criterion
- Hartley Oscillator
- Feedback
- Binary Counter Circuit
- Unidirectional, Bidirectional and Multi-Directional Switch
- Flip Flops
- Microprocessor
- Boolean expression

Computer Science:

- ASCII code
- FIFO, LIFO
- Data Warehouse
- Waterfall Model
- Data Model
- Data Mart
- Programmed I/O
- Interrupt Initiated I/O
- DMA
- BCD, Decimal, Hexadecimal, Gray Code, EBCDIC
- Cascading Style Sheets (CSS)
- HTTP, C++, FORTRAN, C Program
- HTML, XML
- Truth Table, SOP
- Logic Gates
- Algorithm
- Windows XP, MS-DOS
- Windows Vista
- Linux
- C Function, myFunction
- Data Structure
- Object-Oriented Programming
- FTP, TELNET, SMTP, SMB

- Cryptography
- Computer Network
- Address Resolution Protocol

Instrumentation:

- OP-AMP
- X-Y recorder, Circular Chart recorder
- Galvanometric and Magnetic recorder
- SI units
- Piezoelectric effect
- Semiconductor
- Hall effect
- TRIAC, Diodes
- CRO
- Static, Calibration, Systematic and Random errors
- Oscilloscope, Electron microscope
- Eddy current and hysteresis loss

Materials Science:

- Thermodynamics and kinetics
- Physical Metallurgy
- Ceramic Science & Technology
- Materials Testing & characterization
- Composites and polymers
- Nanomaterials and technology
- Polymer Science and Technology
- Electronic and Opto-electronic Materials
- Techniques of Materials Characterization, etc

VSSC Medical Officer Syllabus - Topic Wise

Medical Officer SC Syllabus (MBBS):

- Anatomy
- Biochemistry
- Physiology Forensic
- Medicine & Toxicology
- Microbiology
- Pathology
- Pharmacology
- Anaesthesiology
- Community Medicine
- Dermatology & Venereology
- Medicine

- Obstetrics & Gynaecology
- Ophthalmology
- Orthopedics
- Otorhinolaryngology
- Pediatrics
- Psychiatry
- Surgery, etc

Medical Officer SD Syllabus (General Medicine):

- Anatomy Including Histology
- Physiology Including Biochemistry
- Pathology Including Microbiology
- Pharmacology
- Heart Disorders
- Nutritional Diseases
- Introduction to Clinical Medicine
- Genetic & Immunological Factors in Disease
- Antibiotic Audit
- Infection control Strategies
- Diseases of Cardiovascular, Respiratory System
- Diseases of Digestive System, Liver and Biliary Tract
- Diseases of the Blood and Blood Forming Organs
- Psychiatry
- Errors of Metabolism
- Community Medicine
- Diseases of Children
- Diseases caused by Protozoa, Helminths, Bacteria, Viruses, Fungi