

SYLLABUS FOR PART-A: GENERAL

Topics	Description
General Knowledge	<ul style="list-style-type: none"> • Facts about India and other countries: Basic facts / Geography / Tourism / Transport systems / Personalities / Places / History / Constitution / Economy / Writers / Literatures / Indian States & Union Territories / International Organizations. • General Science : Branches of studies / Scientific instruments and appliances / Physics / Chemistry / Biology • Sports & Games • Important Events/ Movements / Leaders / Places / Years • Writers – Authors – Biography - Autobiography • Abbreviations
General English	<ul style="list-style-type: none"> • Spotting Errors / Vocabulary usage / Sentence Completion / Synonyms / Antonyms / Reconstruction of sentences / One word substitution / Idioms & Phrases / Grammar / Correct usage of Articles / Prepositions / Singular and Plural
Reasoning	<ul style="list-style-type: none"> • Analogy / Classification / Series Completion / Coding-Decoding / Blood Relation / Direction Sense Test / Alphabet Test / Number and Ranking / Puzzle Test / Odd Man out / General Intelligence
Quantitative Aptitude	<ul style="list-style-type: none"> • Number system / Fraction and Decimals / Simplification / Volume and surface areas / Square roots and Cube roots / Problems based on numbers, Speed, Time and Distance, Simple Interest / Compound Interest / Boats and Streams / Problems on Trains / Percentage - Interest / HCF and LCM / Average / Ratio and Proportion / Time and Work / Problems based on ages / Profit, Loss and Discount, Statistics / Permutations & Combinations / Probability.

SYLLABUS FOR PART-B
DETAILED SYLLABUS OF PROJECT ASSISTANT (MECHANICAL)

Sl No	Topics	Description
1	Manufacturing Process	Casting /Forging / Extrusion, Machining, Type of machines, Cutting fluids, Cutting tools, CNC, CAD, Operating system, 5 S
2	Welding	Types, Defects, Tests, Welding sets
3	I C Engines	Components, Two stroke, Four stroke
4	Thermal Engineering	Turbines, Condensers
5	Metallurgy & Properties	Heat treatment
6	Strength of Materials	Stress, Strain, Shear forces
7	Maintenance	Types - Preventive, Break down and Predictive
8	Materials	Inventory, Functions of stores
9	Metrology and Instruments	Measuring instruments
10	Construction and functioning of various machines / equipment / other service facilities	Compressors, Pumps, Boilers, EOT cranes, Lifting tackles, Refrigeration and air conditioning, Material handling equipments like Forklifts, Industrial Gases

DETAILED SYLLABUS OF PROJECT ASSISTANT (ELECTRICAL)

Sl No	Topics	Description
1	Basic electrical engineering	Network theorems and laws, Magnetic circuits, AC fundamentals, RLC circuits
2	Static and rotating AC&DC machines	DC generators, DC motors, Transformers, Synchronous generators, Synchronous motors, Induction motors, Single phase motors, Universal motor, motor starting methods, speed control
3	Power systems	Generation of electrical power, Transmission and distribution, Circuit breakers, Cables, switchboards, Distribution boards, protection & safety devices, earthing, lighting protection, low voltage, medium voltage and high voltage systems.
4	Basic Electrical measurements	Moving coil instruments, Moving iron instruments, Measurement of current, voltage, frequency and energy, Bridge circuits, various types of traducers
5	Basic Electronics	Semi conductors & solid state physics, Active & passive devices, Integrated circuits & logic gates, Amplifier & oscillators, Digital circuits and microprocessors
6	Basic Computer Applications	Hardware and software, Operating systems and applications, Internet, Networking

DETAILED SYLLABUS OF PROJECT ASSISTANT (ELECTRONICS)

Sl No	Topics	Description
1	Circuit Fundamentals	Passive Circuit elements, Ohm's Law, Energy Sources, DC and AC, Fundamentals with major laws & theorems.
2	Solid State Physics	Conductors, Semiconductors and Insulators
3	Introduction to active and passive Devices in circuits, Switching circuits, power supplies	Resistors, Capacitors, Diodes, Special Diodes, Transistors, FET, Thyristors, DIAC, TRIAC, Optoelectronics Devices, IGBT, switching applications, UPS
4	Amplifiers and Oscillators	Single Stage and Multistage Amplifiers, Feedback amplifier, Sinusoidal and non-sinusoidal Oscillators
5	Integrated Circuits and Logic Gates	Basic gates and equivalent circuits, Adders, Subtractors, Op-Amp, Flip Flops
6	Basic electronic Instruments & transducers	Analog and Digital Instruments, Multimeter, Voltmeter, Ammeter, CRO, load cell, piezo & Hall sensors, LVDT
7	Digital Circuits and Microprocessors	Boolean Algebra, Digital logic families, Combinational circuits, Sequential circuits PLC, Microprocessors: 8085 and 8086, Ladder Diagram
8	Principles of Communication	Modulation and De-modulation types, Electromagnetic Spectra, Basic principles of Fibre Optic communication
9	Basic Electrical technology	AC and DC fundamentals, Basic working of AC and DC motors classification, Transformers, AC/ DC motor speed control techniques, Basic working principle of Generators, Alternators, Rectifiers and invertors, motor starting methods, basic power electronics.
10	Basic Computer Applications	Hardware and software, Operating systems and applications, Internet, Networking

DETAILED SYLLABUS OF PROJECT ASSISTANT (INSTRUMENTATION)

Sl No	Topics	Description
1	Basic electrical engineering	AC and DC fundamentals, Basic working of AC and DC motors, Transformers, AC/ DC motor starting & speed control techniques, Basic working principle of Generators, Alternators, basic power electronics, Generation of electrical power, Transmission and distribution, Protection and safety devices.
2	Basic Electronics	Semi conductors & solid state physics, Active & passive devices , Integrated circuits & logic gates, Amplifier & oscillators, Boolean algebra, Digital circuits and microprocessors.

3	Basic instrumentation theory	Measurement of temperature, pressure, humidity, velocity, flow, level, pH, viscosity, acceleration, various types of transducers, introduction to hydraulics & pneumatics system and components, measurement of electrical parameters.
4	Basic control theory	Closed loop & open loop systems, servos, synchros, stepper motors, PID controllers, PLC, DCS, SCADA.
5	Basic Computer Applications	Hardware and software, Operating systems and applications, Internet, Networking

DETAILED SYLLABUS OF PROJECT ASSISTANT (CIVIL)

Sl No	Topics	Description
1	Surveying & Levelling	Chain surveying- Compass traversing-Plane table surveying-Theodolite traversing, Level survey & Total station survey, Instruments for surveying-Field work and field book- Calculation of levels, Contouring, Reduction of levels.
2	Building Materials	Characteristics, properties, tests & classifications of Bricks, aggregates, Cement, Steel, Classification of Timber, Paints, varnishes etc. Acceptance of materials and relevant IS codes.
3	Concrete technology	Properties, advantages and uses- Grades of concrete as per IS code, water cement ratio, Workability, mixing, batching, compaction and curing.
4	Masonry	Types and specifications for Brick, Stone masonry, Types and methods of construction, different bonds and their comparison, relevant IS specifications.
5	Damp proof courses	Causes and prevention of dampness, internal/external water proofing
6	Form work	Requirements of good formwork, scaffolding, shoring- purpose and functions
7	Plastering and Pointing	General specifications
8	Foundations	Classification, Types of various foundations, Method of construction
9	Soil mechanics	Index properties, relationships, Bearing capacity, Soil investigation methods and tests, Selection of foundation.
10	Flooring	Materials- advantages & disadvantages, finishes.
11	Simple stress and strain	Types of stresses-Elasticity-Hook's law-Young's modulus-stiffness, plasticity, toughness, brittleness, ductility, Malleability and hardness-Linear strain and lateral strain-Poisson's ratio-volumetric strain-Bulk modulus-modulus of rigidity
12	Beams and bending	Classification of beams, Types of loading, Shear force and bending moment
13	Tender process	Types of tender, EMD, Security deposit, Performance guarantee, Acceptance of tender, work order and contract agreement.
14	Measurement of Works	Methods of measurement, IS code provisions.

15	Bills for work done	Preparation of bills, interim payments, advances, mobilization
16	Construction Machinery	Earth moving and compacting, concrete mixers, Pumps, ready mix plants, Lifting and hoisting machineries
17	Safety in Construction	Basic guidelines for safety, causes and prevention of accidents, safety practices, occupational hazards
18	Estimation, costing & Valuation	Preparation of estimate, analysis of rate, units of measurement, specification, valuation, depreciation of various civil engineering structures
19	Transportation Engineering	Types of pavements, materials used, drainage, highway design, Railway engineering-Components and geometry of track, Stations and yards, Docks and harbours-Terms and definitions, docks, breakwater, dredging
20	General	Kerala Building Rules
21	Basic Computer Applications	MS Excel, MS Word, MS Project

DETAILED SYLLABUS OF PROJECT ASSISTANT (INFORMATION TECHNOLOGY)

Sl No	Topics	Description
1	Computers & Devices	Basic Computer terminology History of computers Devices- Input, Output devices Memory and types of memory
2	Uses and applications	MS Office - MS Word, Excel etc Data entry Basics of Internet, ERP
3	Skills & Expertise	System & Server Administration and management Operating systems – UNIX, LINUX and Windows Computer networks, Maintenance, Data storage, Network administration and Management Database Management systems Management of PCs and peripheral devices Various types of IT systems management Information security practices and Cyber laws Smart Technologies, Mobile, IoT, Cloud Computing

Syllabus for Project Assistant (Finance)

Sl No	Topics	Description
1	Accounting and various Acts	Theoretical and application knowledge on: Financial Accounting Trading & Profit & Loss Account and Balance Sheet Bank Reconciliation Statement Depreciation, Reserves and Reserve Funds Ratio Analysis Capital and Revenues Revenue Accounts, Receipts & payments Accounts, Income & Expenditure Accounts, Company Accounts Cost Accounting Cost Records and Cost Audit Direct and Indirect Taxes- Income Tax Act, Goods and Service Tax Companies Act, Factories Act, Industrial Disputes Act