SYLLABUS FOR ALL POST CODES

Part-A for all the Posts

- **General English**-vocabulary, grammar, sentence structure, synonyms, antonyms and its correct usage,
- **General Knowledge-**India and its Neighbouring countries, Sports, History, Culture, Geography, Economic scene, General Polity including Indian Constitution, and Scientific Research, current events, Questions on Oil India Limited.

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Part-B for all the Posts

- **Reasoning-**analogies, similarities and differences, space visualization, problem solving, analysis, judgment, decision making, visual memory, discriminating observation, relationship concepts, arithmetical reasoning, verbal and figure classification, arithmetical number series, non-verbal series, arithmetical computation etc.
- **Arithmetic/Numerical ability**: - analogies, similarities and differences, space visualization, problem solving, analysis, judgment, decision making, visual memory, discriminating observation, relationship concepts, arithmetical reasoning, verbal and figure classification, arithmetical number series, non-verbal series, arithmetical computation etc.

SYLLABUS: ELECTRONICS MECHANIC (SRDEMC12026)

1. Importance of safety and general precautions observed in the in the industry/shop floor - First aid, PPEs and Response to emergencies etc.
2. Ohm's law and Kirchhoff's Law. Resistors; types of resistors, their construction & specific use, color-coding, power rating.
3. Semiconductor materials, components, number coding for different electronic components such as Diodes and Zeners etc.
4. Regulated Power supply , PNP and NPN Transistors, E, B & C Terminals.
5. Biasing, Transistor (C-B, C-E & C-C), their characteristics and applications.
6. Oscillator: Uses their applications. FET, JFET, MOSFET, Power MOSFET and IGBT, types, characteristics.
7. Digital electronics - analog and digital signals. Logic Families, Number systems, BCD code. LED panels, CTV, LCD, LED TV, 3 D TV, Remote Control.
8. Combinational logic circuits such as Half Adder, Full adder, Concept of encoder and decoder. Flip-Flop. S-R Latch, Gated S-R Latch, D- Latch.
9. Circuit simulation software - Library components, Various resources of the software.
10. Counters: Types, seven segment display. Basics of Register, types and application of Registers.
11. Block diagram and Working of Op-Amp, importance, Ideal characteristics, advantages and applications.
12. Digital storage oscilloscope (DSO)/ CRO – applications, advantages, difference.
13. SMD technology, Surface Mount Technology (SMT).
14. Static charges: prevention, handling, various standards for ESD.
15. Printed Circuit Boards (single, Double, multi- layer). Necessity of fuse, fuse ratings, types of fuses, fuse bases. Single/ three phase MCBs, single phase ELCBs.
16. Types of contactors, relays and working voltages. Fundamentals of single phase Induction motors.
17. Radio Wave, Microprocessor, Microcontroller, Passive and Active transducers.
18. Introduction to optical fiber, optical connections, multiplexing
19. Manual, Automatic Voltage stabilizer. Concept of Uninterrupted power supply. Inverters and UPS.
20. Renewable energy sources. Mobile communication, GSM and CDMA technology.

SYLLABUS: FITTER (SRDFTR12026)

1. Importance of safety and general precautions observed in the in the industry/shop floor - First aid, PPEs and Response to emergencies etc. Basics of Hot work, confined space work and material handling equipment.
2. Bench Vice, Files – specification, types, uses, care & maintenance. Marking and measuring tools, Marking media, their special application, description.
3. Physical & Mechanical properties of engineering metal. Types, properties and uses: Pig Iron, Cast Iron, Steel and Non-ferrous metals (Copper, Aluminium, Tin, Lead, Zinc).
4. Power Saw, band saw, Circular saw machines used for metal cutting.
5. Micrometer, Vernier calipers, Dial test indicator – principle, features, parts, reading, use and care.
6. Drilling processes - Types, Drill- material, Drill angle, Drill holding devices, Drill troubles: causes and remedy.
7. Sheet metal – sheet, sizes, types, uses as per BIS specifications. Shearing machine- description, parts and uses.
8. Stakes- types, parts, their uses. Various types of metal joints, Wired edges. Solder and soldering: types of solder and flux.
9. Counter sink, counter bore and spot facing-tools, Reamers, Screw threads.
10. Tap and Dies, Grinding wheel: Abrasive, grade structures, bond, specification, use, mounting and dressing.
11. Lathe specifications, and constructional features, main parts. Lathe cutting tools.
12. Chucks and chucking. Lapping, Honing: Applications, materials.
13. Turning operations- Types, Uses, Methods.
14. Maintenance- Total productive maintenance,-Autonomous maintenance, Routine maintenance, Maintenance schedules.
15. Screws: material, designation, specifications, Power tools, Nuts, Keys.
16. Heat treatment, various heat treatment methods. Various coatings used to protect metals.
17. Gauges, Bearings, Bearing materials and Pipes and pipe fittings.
18. Vee belts, commercial belts, Couplings, Pulleys. Power transmission.
19. Industrial hydraulic system, Applications, Pascal's Law. Pneumatic valves, Hydraulic oil, filters, cylinders motors and valves.
20. Lubrication and lubricants- Types, Purpose, Use.

SYLLABUS: INSTRUMENT MECHANIC (SRDIMC12026)

1. Importance of safety and general precautions observed in the in the industry/shop floor - First aid, PPEs and Response to emergencies etc.
2. Basic hand tools, types, classification. Measuring instruments, Marking tools, Fasteners & Fastening devices.
3. Precision Measuring Instruments, gauge blocks, sine bar, dial indicators, vernier calipers, micrometers, bevel protractor, thickness gauges.
4. Types of tubes, Tube cutter, Flaring tools, Swedging tools, pipe bending, straightening,thread cutting, method of installation.
5. Ohm's law & Kirchhoff s laws. A.C & DC electricity, types of wave forms, time period and frequency, peak to peak values, RMS values, Average values.
6. Multimeter. Resistor, Resistivity and colour code, soldering anddesoldering. Soft soldering. Types of soldering irons. Solder& flux.
7. Batteries. {Liquid & dry).Maintenance free batteries construction-charging, efficiency-use, advantage.
8. Switches and types. Magnet, magnetism, magnetic properties, Electro-magnetism. E.M. relays, Solenoids, Circuit breakers.
9. A.C.-impedance, Inductive reactance, capacitive reactance.
10. Introduction of AC and DC generators working principles,construction.
11. Transformer, types, transformation ratio. Open circuit and short circuit test.
12. Electrical measuring instruments - absolute and secondary instruments, DC instruments, AC instruments.
13. Semiconductor, Covalent bond,Doping, Intrinsic and extrinsic semiconductor. Transistors, Rectifier, Voltage Regulators.
14. Power Supply units. Introduction, purpose & use. UPS and SMPS, inverters and converters and their applications. Thyristor devices.
15. Oscillator's oscillations,oscillation frequency, basicworking principle and working of Talk circuit, Crystalcontrolled oscillators, Phaseshift oscillators, RC phase shift oscillators, Colpitt, Clapp, Hartley, and IC oscillators.
16. Operational Amplifier. Differential amplifier, ideal op- amp. Op-amp with feedback, Advantages of feedback. Inverting and Non invertingand inverting amplifier.
17. Number systems; binary, octal, decimal and hexadecimalnumber system. Boolean algebra, Logic Circuits. Basic gates, Special gates, Flip flops Counters and registers.
18. A/D and D/A converters, Introduction, Types, Specification
19. Digital meters: frequency meter, phase measuring meter, and time measuring instruments. Digital capacitance meter.
20. CRO: introduction and applications. MultimediaSystem - CD ROMS, DVD ROMS, Sound Cards. Computer Hardware & Software, Microprocessormicrocomputers.

SYLLABUS: SURVEYOR (SRDSUR12026)

1. Importance of safety and general precautions observed in the in the industry/shop floor - First aid, PPEs and Response to emergencies etc.
2. Details layout of lettering, lines & dimensioning system.
3. Introduction of surveying, types of surveying, use, application principal.
4. Knowledge of different types of scales, determine of R.F & uses of scales.
5. Different types of projection views orthographic, sectional, isometric view.
6. Use & application of conventional signs & symbols.
7. Principle of various survey techniques, applications, instruments, precautions, merits & demerits, errors: Chain Survey
8. Principle of various survey techniques, applications, instruments, precautions, merits & demerits, errors: Compass Survey
9. Principle of various survey techniques, applications, instruments, precautions, merits & demerits, errors: Plane Table Survey
10. Auto CAD. Use, Applications, Commands etc.
11. Theodolite: Types, Parts, Theodolite survey.
12. Levelling: Types, Levelling Instrument, Common errors, etc.
13. Tachometry: Basics, Advantages and Disadvantages.
14. Contouring: Characteristics, Uses etc.
15. Curves: Purpose, Types, Various methods.
16. Basics of Total station, cadastral map.
17. Knowledge for preparation of topographical map, cadastral map, road project.
18. Importance of cartographic projection. Uses of various types of cartographic projection for mapping.
19. GIS & GPS: Elements, Observation principles, Types etc.
20. Types of surveys for location of a road, Introduction to hydrographic survey, Basics of transmission line survey.

Syllabus-Jr. Office Assistant-1 (SRDJOA12026)

Section/ Part C

English Knowledge: Active and Passive Voice, Prepositions, Spotting Errors, Homophones, Identify the Sentences, Substitution, Spelling Test, Passage Completion, Adjectives, Nouns, Transformation, Joining Sentences, Articles, Sentence Pattern, Sentence Completion, Tag Questions, Para Completion, Sentence Arrangement, Error Correction (Underlined Part), Error Correction (Phrase in Bold), Fill in the blanks, Idioms and Phrases, Tense, Sentence Improvement, Gerunds, Identify the Errors, Odd Words, Prepositions, Plural Forms, Suffix

Computer Knowledge-The questions on basic computer knowledge will be from Characteristics of Computers, Computer Organisation including RAM, ROM, File System, Input Devices, Computer Software-Relationship between Hardware and Software, Operating System, MS-Office (exposure of Word, Excel/spread sheet, Power point), Information Technology and Society-Indian IT Act, Digital Signatures, Application of information technology in Government for E-Governance, mobile/Smartphone's, Information Kiosks.

SYLLABUS-DIPLOMA IN ELECTRICAL ENGINEERING (SRDELE12026)

1. Importance of safety and precautions, housekeeping & good shop floor practices. PPEs, First Aid. Response to emergencies e.g. power failure, fire, and system failure. Occupational Safety & Health.
2. Computer Architecture, Number System and codes, Introduction to Operating System, Computer Network and the Internet, Introduction to C programming.
3. Elements of Mechanical Engineering: Properties and Laws of Gases, Properties of Steam, Generation of Steam, Steam Engine, Internal Combustion Engine, Steam Turbines, Gas Turbines, Transmission of Motion and Power.
4. Principle of Electrical Engineering: Fundamental Concept, Magnetism and Electromagnetism, Electromagnetic Induction, Energy Conversion Principle, Electrostatic, AC Fundamentals, Phasor Algebra, AC Series Circuit.
5. Elements of Electronic and Devices: Semiconductor, Electronic devices: Transistor, Transistor amplifier, Feedback circuit and oscillator, Special semiconducting devices, Integrated circuits.
6. Electric Circuit with Network: D. C Network Theorem (With independent Source), D. C Network Theorem (With dependent Source), A. C Network Theorem, Single phase AC parallel circuit, Three phase circuit, Transients, Application of Mat lab:
7. Electrical measurement and Measuring Instruments-I: Unit, dimensions and Standards, Measurement and instrumentation system, Electromechanical instruments, Measurement of resistance, Potentiometer, A.C. Bridge, Measurement of current and voltage:
8. Electrical Machines-I: D.C. Generator, D.C. Motor, Single Phase Transformer, Three Phase Transformer, Special D.C. machine, Special Transformer,
9. Electrical Engineering Materials: Conducting Materials, Semiconducting Material, Insulating Materials, Dielectric Material, Magnetic Material, Electric Hardware, Constructional Materials.
10. Electrical & Electronics Drawing and Design: Symbols and Notation, Electrical Machine Drawing, Winding, Electrical Wiring, Sub-Station, Electronic Drafting, Transformer Design.
11. Digital Electronics: Number System, Logic gates, Boolean Algebra, Combinational logic, Flip-Flops, Register and Counters, Data Converter &Memory Devices, Display.
12. Electrical Measurement and Measuring Instruments-II: Measurement of power, Measurement of energy, Instruments for special purpose, Electronics Instrument, Primary sensing element and transducer, Data transmission and telemetry Microprocessor based Instrumentation system.
13. Electrical Machines II: Poly phase induction motor, Single phase of induction motor, Alternators, Synchronous motor, Commutator motor, Special A.C. machine.
14. Electrical Power: Generation of Electrical Power, Economics of Generation and Economic Load Dispatch, Transmission of Electrical Power, Mechanical Design of Transmission Line, HVDC Transmission, Substation, Power System Stability, PLC.
15. Microprocessors: Introduction, 8-bit Microprocessor Architecture, Instructions and Programming, 16 bit Microprocessor 8086, Interfacing Peripherals.
16. Non-Conventional Energy: Sources, consumption, Solar Energy Engineering, Wind Energy Engineering, Ocean Energy Engineering, Geothermal Energy Engineering, Bio Energy Engineering, Direct Energy Conversion Systems, Chemical Energy Sources.
17. Electrical Estimating, Costing and Contracting: Elements of estimating, Principles of Contracting, Estimating and Costing of domestic and industrial Wiring, Estimating and costing of service connection, Estimation Of overhead and underground Distribution System, Estimation of Small Substations, Estimating and Costing of repair and maintenance and electrical devices and equipment.
18. AC Distribution and Utilization: AC Distribution, SCADA System for Electrical Distribution, Power Factor Improvement, Electrical Tariff, Cables, Electric Heating and Welding, Electric Drives, Illumination, Electro Chemical Power:
19. Switchgear and Protection: Elements of Protection, Relays, Neutral Earthing, Circuit Interrupting Devices, Arc Formation Process, Circuit Breaker, Protection Scheme, Over Voltage Protection:
20. Installation and maintenance of electrical equipment's: Tools and Accessories, Installation, Commissioning, Earthing, Testing and maintenance of insulation, Maintenance, Trouble shooting, Electrical accidents and safety measures.