DETAILED SYLLABUS OF

ELECTRONICS MECHANIC TRADE
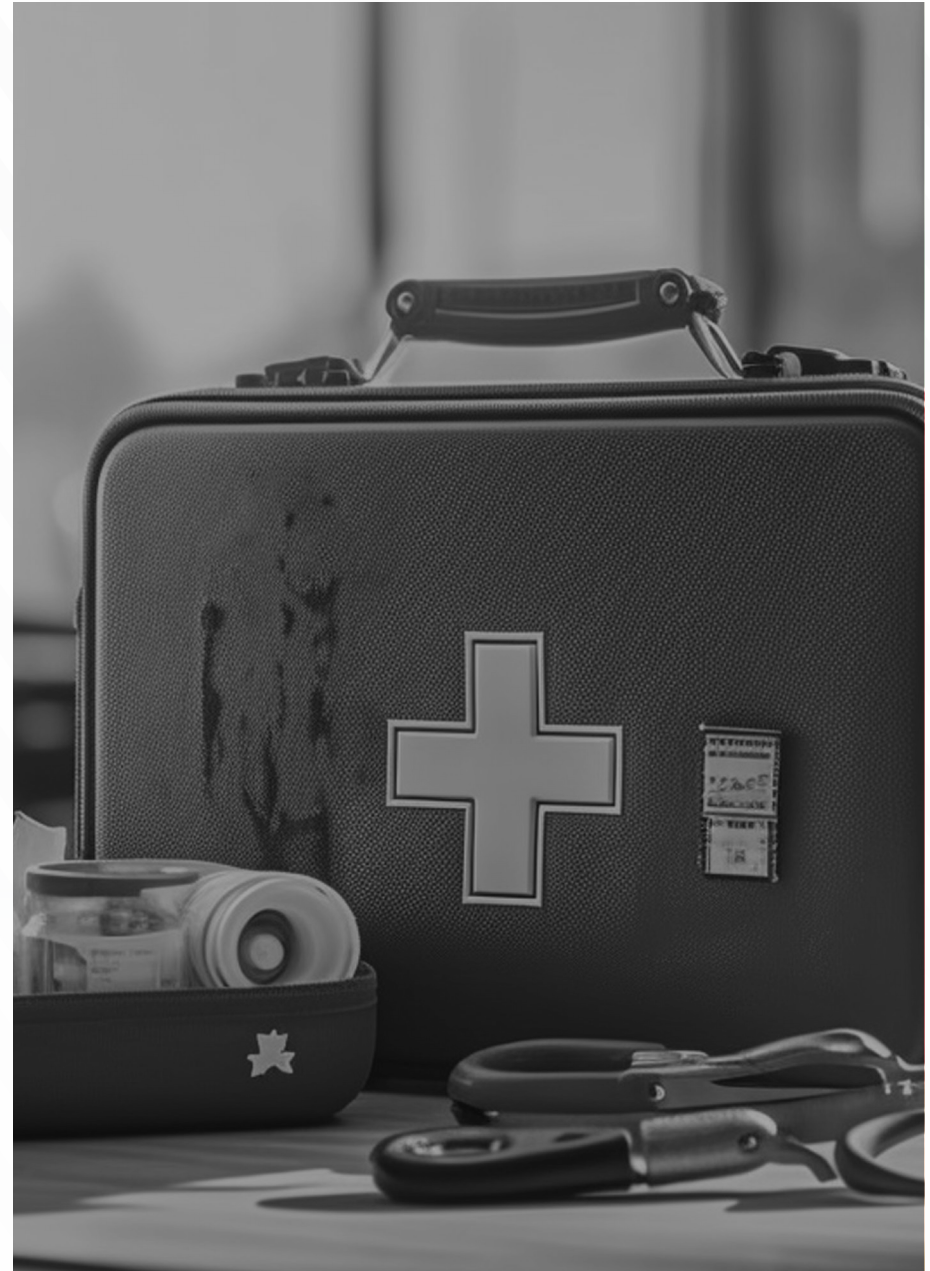
IN RRB TECHNICIAN

(CEN) NO. 02/2024

SAFETY, FIRST AID
& TRADE TOOLS

- Safety rules and safety signs, Types and working of fire extinguishers, First aid safety practice, Hazard identification and prevention, Personal safety and factory safety.

- Concept of Standards and advantages of BIS/ISI. Trade tools specifications.

ACTIVE - PASSIVE
COMPONENTS AND IC's

Resistors. Capacitors, Inductors, Series-parallel combinations of resistors, capacitors & inductors, Colour coding of various components, Inductive reactance, Capacitive reactance, Self inductance, Mutual inductance, Q - Factor, Transformers, Diodes, Transistors, FET, MOSFET, Surface Mount Device, Regulated IC's.

BASIC
ELECTRONICS

- Semiconductor materials, PN Junction, Diode biasing, PNP & NPN Transistors, α, β, γ relationship, Transistor biasing, Transistor configuration, Classification of amplifiers, Single stage and multistage amplifiers, Oscillators (Sinusoidal and non sinusoidal), Multivibrators, Operational amplifiers.

POWER
SUPPLIES

- Cell, Batteries, Care and maintenance of cells, Rectifiers, regulated power supplies, SMPS, UPS, Inverter.

BASIC
ELECTRICAL

- Ohm's law, Kirchhoff's law, AC & DC measurements, Classification of meters, Network theorems, AC fundamentals, Faraday's law electromagnetic induction, Basic concepts of voltage, current, power and energy.

ELECTRICAL AND ELECTRONIC MEASURING INSTRUMENTS

- Multimeter, Cathode Ray Oscilloscope, Digital Storage Oscilloscope, Function generator.

SOLDERING AND DESOLDERING

- Different soldering techniques, soldering materials, Different types of soldering gun, Flux

ELECTRONIC COMMUNICATION

- Radio wave propagation, Modulation and Demodulation, AM & FM transmitter and Receiver, Digital modulation techniques, Sampling, Quantization and encoding, Multiplexing and Demultiplexing, Optical fibre communication, Mobile communication.

TRANSDUCERS
AND SENSORS

• Active and passive transducers, Thermistors, Thermocouple, Strain gauge, Inductive and capacitive transducers, LVDT, Proximity sensors, Optoelectronic devices, Solar Power (Renewable Energy System), LCD and LED TV.

DIGITAL ELECTRONICS
& MICROCONTROLLERS

• Different logic gates and truth table, Logic families, Combinational logic circuits, Arithmetic circuits, Encoder, Decoder, Multiplexer, Demultiplexer, Flip Flops, Sequential logic circuits, Registers, Counters, ADC and DAC circuits.

• 8051 Microcontroller, features, Internal architecture, Pin diagram, Addressing modes.

COMPUTER HARDWARE
& NETWORKING

- Basic blocks of a computer, Components of desktop and motherboard. Hardware and software, I/O devices, and their working. Different types of printers, HDD, DVD. Various ports in the computer.

- Concept of word processing: MS word –Menu bar, standard tool bar, editing, formatting, printing of document etc. Excel –Worksheet basics, data entry and formulae. Moving data in worksheet using tool bars and menu bars, Formatting and calculations, printing worksheet, creating multiple work sheets, creating charts.

- Network features – Network medias, Network topologies, protocols- TCP/IP, UDP, FTP, models and types. Specification and standards, types of cables, UTP, STP, Coaxial cables. Network components .

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper

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you

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