

DETAILED SYLLABUS FOR THE POST OF JUNIOR INSTRUCTOR (DRIVER CUM MECHANIC) IN INDUSTRIAL TRAINING DEPARTMENT

Cat No: 668/2023

Module 1: Driving basics per motor vehicle driving regulation

(10 Marks)

Key aspects of road safety, Motor vehicle driving regulation (MVDR), Key rules of motor vehicle driving regulation, Duty towards other road users and general public, Use of road by vehicles, Duties of drivers and riders, Lane traffic, Right of way, Projection of roads, Registration plate, Use of mobile phones and communication devices. Public relations for drivers,, Rules for being a good driver, Drinking and driving, Defensive Driving, First Aid.

Module 2: Driving Theory

(10 Marks)

Vehicle controls, Foot controls, Hand controls, other controls, Pre driving checks, Stopping and parking rules per MVDR, Driving at intersections, Merging and diverging, Turning maneuvers, Overtaking, Reversing, Parking parallel, Angular & Perpendicular parking, Parking facing uphill, Parking facing down hill, Common errors.

Module 3: Traffic Education

(10 Marks)

Hand signals, Traffic signs, Automatic light signals, Road markings, Speed regulations on highways and city roads, Lane discipline, Highway driving, Road functional classifications, Design speeds, Road geometrics, Surface types and characteristics, Slopes and elevation, Road junctions, Principles and types of junctions, Traffic islands, Channelizes, Barricades, Bypass, Subway, over bridge, Fly over driving procedures.

Module 4: Basics of Automobile

(15 Marks)

Body and Chassis, Engine and related systems, Transmission system, Braking system, Steering system, Suspension system, Wheels & Tires, Safety systems.

Module 5: Emission Control

(5 Marks)

Basic concepts, BS IV engines, BS VI engines, Exhaust gas recirculation, Variable geometry turbocharger, Diesel oxidation catalyst, Diesel particulate filter, Selective catalytic reduction, Major pollutants in exhaust gas,

Module 6: Basics of Electricity

(10 marks)

Electrical concepts, Simple electrical circuits, Electrical magnitudes and units, Protecting circuits, Short circuit, Ohm's law, Series circuit, Parallel circuits, Electrical power, Multi-meter, Battery, Battery charging, Breakdown repair, Alternator, starter motor, Charging system, Starting system.

Module 7: Basics of Electronics

(10 Marks)

Electrical and electronic components, Resistors, Transistors, Capacitors, Diodes, Electrical signals, Various sensors and its principles, Actuators, Electronic control Unit.

Module 8: Basics of Heating, Ventilation and Air conditioning system

(10 Marks)

Purpose of air conditioning system, Principles of cooling, Principles of evaporation, Components of HVAC and their functions, Cooling and heating system, Refrigeration circuit, Air distribution, Temperature control, Safety controls, General safety recommendations.

Module 9: Measuring Instruments, Tools & Equipment

(10 Marks)

Overview, Metrology, Measurement and inspection, Accuracy and precision, Measurement and inspection, Various measuring instruments, Important measurements, Precautions, Do's and Don'ts, Important workshop tools and Equipment.

Module 10: Advanced Technology

(10 Marks)

Engine immobilizer, Anti lock braking system, Electronic stability program, Traction control system, Electronic parking brake, Electric power steering, Reverse parking assistance system, Surround view system, Advanced driver assist system, Tyre pressure Monitoring System, Infotainment system.

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.