অসম লোকসেৱা আয়োগ
ASSAM PUBLIC SERVICE COMMISSION
Jawaharnagar, Khanapara, Guwahati-781022.

Name of the Exam: Motor Vehicle Inspector under Transport Department, Assam.
ADVT. NO. 08/2024 Dated Guwahati the 11th March, 2024

PAPER-I
(MCQ OMR BASED)
Syllabus for General Studies

Full Marks : 100 **Duration: 2:00 Hours**

Subject	Topics
➢ General Studies	1. Current Affairs (India/Assam). 2. Indian History & National Movement. 3. Assam History. 4. Geography(India/Assam). 5. Indian Polity and Constitution. 6. Sports/Books/Author and important people of Assam. 7. Economy of India & Assam. 8. Environment of Assam. 9. General Mental Ability. 10. Reasoning & Aptitude. 11. Transport Economy 12. Information Technology
General English	1. Correction of Common error. 2. Precis Writing. 3. usage of tenses.
Basic Knowledge of regional language of the State	Literature, culture & festivals of Assam & North East.

PAPER-II
(MCQ OMR BASED)

Paper – II (Automobile / Mechanical) Engineering **Full Marks: 100 Marks**

(Multiple Choice Objective Type Questions) **Time: 2:00 Hours**

(A) SYLLABUS FOR MECHANICAL ENGINEERING

1. Computer Application & Programming
   Computer Architecture, Number System and codes, Introduction to Operating System, Computer Network and the Internet, Introduction to C programming.

2. Engineering Economics & Accountancy.
   Introduction to Economics, Demand and Supply, Production, Money, Banking Organization, Pricing, Introduction to Book-Keeping and Accounting, Introduction to Computerized Accounting System, Transaction, Journal and Ledger, Cash Book, Trial Balance & Errors in Accounting, Components of Final Accounts.

3. Environmental Education
   General concept, Elements of ecology, Environmental Pollution, Environmental Sanitation, Resource Conservation.

4. Fluid Mechanics & Fluid Machines
   Introduction, Physical Properties of Fluids, Fluid Statics, Fluid Kinematics, Fluid Pressure Measurement, Pipe Flow & Open Channel Flow, Fluid Machine, Hydraulic Turbines, Pumps.

5. Manufacturing Technology-I
   Basic Machine Tools, Metal Casting Process, Welding Process, Press Work, Powder Metallurgy, Cutting Fluids and Coolants.

6. Fundamentals of Electrical & Electronics Engineering.
   Introduction, DC network, Generator & motor, AC fundamental, AC circuit, Transformer, Semiconductor, Transistor, House wiring, Microprocessor.

7. Thermodynamics.
   Fundamental Of Thermodynamics, Laws Of Perfect Gases, Thermodynamic Process, Fuels & Combustion, Air Standard Cycles, Properties Of Steam, Vapour Power Cycles, Heat Transfer.

8. Engineering Materials
   Mechanical Properties of Materials, Structure Of Solids, ferrous metals and it's alloys, non - ferrous metals and it's alloys, plastic, testing of materials, heat treatment, corrosion & surface engineering.

9. Manufacturing Technology-II
   Lathe, Drilling machine, Shaper, Planer & Slotter, Grinding & Surface finishing, Milling machine, Non-Traditional machining methods, Jigs and Fixtures.

10. Theory of Machines
    Introduction, Basic kinematics of Machines, Friction, Transmission of Power, Cams, Mechanical, Vibrations, Balancing, Governors.

11. Strength of Materials
    Simple Stresses and strains, Shear force and bending moments, Theory of simple bending and Deflection of beam, Stresses in beams, Torsion in circular shafts and springs, Columns and Struts, Rivets and riveted joints.

12. Thermal Engineering - I
    Steam generators, Steam nozzles, Steam turbine, Steam condensers and Cooling towers, Nuclear power plant, Heat transfer.

13. Industrial Engineering
    Method Study, Job Evaluation & Merit Rating, Wage Systems, Inspection and Statistical quality control, Network Analysis.

14. Plant Maintenance Engineering

Introduction of maintenance, Power Plant, Maintenance and its type, Electrical maintenance.

15. Non-Conventional Energy

Introduction to Non-Conventional Energy Sources, Solar Energy Engineering, Wind Energy Engineering, Ocean Energy Engineering, Geothermal Energy Engineering, Bio Energy Engineering, Direct Energy Conversion Systems, Chemical Energy Sources.

16. Automobile Engineering

Introduction, Engine Operations and Constructions, Engine Fuel system, Engine Lubricating, Cooling & Intake & Exhaust system, Automotive Electrical system, Suspension System, Front axle and Steering System, Power Transmission system, Brake System, Wheels and Tyres.

17. Refrigeration & Air Conditioning

Introduction, air refrigeration system, vapour compression refrigeration system, vapour absorption system, refrigerants , refrigeration components, control and safety devices, application of refrigeration, introduction to air conditioning, psychometrics, Cooling load Estimation, Air Conditioning System , Application of A/C System.

18. Mechatronics

Introduction to Mechatronics, Sensors and transducers, Signal Conditioning, Digital Logic, Microprocessors, Input/Output Devices, Programmable Logic Controllers (PLC), Communication systems, Design of Mechatronics Systems.

19. Industrial Management & Engineering

Introduction to Management, Leadership Decision Making & Communication, Introduction to Cost, Human Resource Management, Industrial Legislation, Production Management, Marketing Management, Entrepreneur and Entrepreneurship, Forms of Business Organisation, Micro and Small Enterprises, Support to Entrepreneurs.

20.Thermal Engineering-II

Internal Combustion Engine, Air compressors, Gas turbine and propulsion, Refrigeration Cycle.

21. Drawing, Estimating & Costing

Jigs and Fixtures, Assembly Drawing, Introduction to Estimation and costing, Elements of costs, Indirect expenses and depreciation, Mensuration and Estimation of material cost, Estimation of Machining Time, Estimation of Welding & Fabrication Time Sheet metal.

22. Metrology

Metrology concepts and standards, Basic Precise and Non Precise Measuring instruments, Limits, Fits, Tolerances and Gauges, Angular Measurements, Comparators, Screw Thread Measurement, Gear Measurement, Surface Finish Measurement, Machine tool metrology, MISCELLANEOUS MEASUREMENTS.

23. CAD, CAM & Robotics

Introduction, fundamentals of cad, hardware in cad, fundamentals of cam, manual part programming, group technology, industrial robotics.

24. Advance Machining Method

Introduction, Spark Erosion Machining, Ultrasonic Drilling (USD), Abrasive Jet Machining (AJM), Chemical Machining (Chemical Milling)(CHM), Electro Chemical Machining (ECM), Electro Chemical Grinding (ECG), Plasma Arc Machining (PAM), Laser Beam Machining (LBM), Electron Beam Machining (EBM).

25. Power Plant Engineering
Introduction to Power plant, Thermal power plant, Hydro power plant, Diesel and Gas turbine plant, Nuclear power plant, Power plant safety.

(B) SYLLABUS FOR AUTOMOBILE ENGINEERING

1. Computer Application & Programming
Computer Architecture, Number System and codes, Introduction to Operating System, Computer Network and the Internet, Introduction to C programming.

2. Engineering Economics & Accountancy
Introduction to Economics, Demand and Supply, Production, Money, Banking Organization, Pricing, Introduction to Book-Keeping and Accounting, Introduction to Computerized Accounting System, Transaction, Journal and Ledger, Cash Book, Trial Balance & Errors in Accounting, Components of Final Accounts.

3. Fundamentals of Electrical & Electronics Engineering.
Introduction, DC network, Generator & motor, AC fundamental, AC circuit, Transformer, Semiconductor, Transistor, House wiring, Microprocessor.

4. Environmental Education
General concept, Elements of ecology, Environmental Pollution, Environmental Sanitation, Resource Conservation.

5. Fluid Mechanics & Fluid Machines
Introduction, Physical Properties of Fluids, Fluid Statics, Fluid Kinematics, Fluid Pressure Measurement, Pipe Flow & Open Channel Flow, Fluid Machine, Hydraulic Turbines, Pumps.

6. Manufacturing Technology-I
Basic Machine Tools, Metal Casting Process, Welding Process, Press Work, Powder Metallurgy, Cutting Fluids and Coolants.

7. Automobile Engines
Introduction, Introduction of Petrol Engine and Diesel Engine, Diesel and Petrol engines, their parts and function, Fuel system of Petrol Engine, Ignition system, Fuel system of diesel engines, Intake and Exhaust system, Lubrication, Cooling system, Supercharging.

8. Thermodynamics
Fundamental Of Thermodynamics, Laws Of Perfect Gases, Thermodynamic Process, Fuels & Combustion, Air Standard Cycles, Properties Of Steam, Vapour Power Cycles, Heat Transfer.

9. Manufacturing Technology - II
Lathe, Drilling machine, Shaper, Planer & Slotter, Grinding & Surface finishing, Milling machine, Non-Traditional machining methods, Jigs and Fixtures.

10. Theory of Machines
Introduction, Basic kinematics of Machines, Friction, Transmission of Power, Cams, Mechanical Vibrations, Balancing, Governors.

11. Strength of Materials

Simple Stresses and strains, Shear force and bending moments, Theory of simple bending and Deflection of beam, Stresses in beams, Torsion in circular shafts and springs, Columns and Struts, Rivets and riveted joints.

12. Automobile Chassis and Transmission

Vehicle layout, chassis and Chassis frame, Suspension system, Steering, Brake system, Clutch, Gear Box, Propeller shafts and universal joints, Final drive and Differential, Front Axle, Wheels and Tyres, Chassis lubrication.

13. Garage Practice & Management

Introduction, Equipment for Service Station, Engine Testing and Tuning, Material Handling, Body repairing, reconditioning and painting, Garage work procedure and records, Garage stores, Sales and distribution of motor vehicles, Industrial law and road transportation, Maintenance, Important features of automobiles.

14. Heat Power Engineering

Steam generators, Steam nozzles, Steam turbine, Steam condensers and Cooling towers, Nuclear power plant, Heat transfer.

15. Industrial Engineering

Method Study, Job Evaluation & Merit Rating, Wage Systems, Inspection and Statistical quality control, Network Analysis.

16. Refrigeration & Air Conditioning

Introduction, air refrigeration system, vapour compression refrigeration system, vapour absorption system, refrigerants , refrigeration components, control and safety devices, application of refrigeration, introduction to air conditioning, psychometrics , Cooling load Estimation, Air Conditioning System, Application of A/C System.

17. Non-Conventional Energy

Introduction to Non-Conventional Energy Sources, Solar Energy Engineering, Wind Energy Engineering, Ocean Energy Engineering, Geothermal Energy Engineering, Bio Energy Engineering, Direct Energy Conversion Systems, Chemical Energy Sources.

18. Industrial Management & Entrepreneurship

Introduction to Management, Leadership Decision Making & Communication, Introduction to Cost, Human Resource Management, Industrial Legislation, Production Management, Marketing Management, Entrepreneur and Entrepreneurship, Forms of Business Organisation, Micro and Small Enterprises, Support to Entrepreneurs.

19. Advanced Automobile Engineering

Engine rating and performance, Fuels, Theory of Combustion, Valve mechanism of modern engines, Alternative Fuel Technology (Modem Engines), Gas turbines, Air conditioning, Bearings, Automotive Emission and awareness, Safety Devices.

20. Auto Electrical Equipment

Introduction, Storage Batteries, Starting system, Generating system, Alternator, Electrical Wiring Systems, Review of the ignition system.

21. Design Estimating & Costing

Basic Design Approach, Layout of Automobile Engine parts, Bill of Materials, Estimating and Costing, Mensuration, Estimating of Machining Time Calculation, Estimating and costing of sheet metal, Estimating and Costing of fabrication.

22. Metrology

Metrology concepts and standards, Basic Precise and Non Precise Measuring instruments, Limits, Fits, Tolerances and Gauges, Angular Measurements, Comparators, Screw Thread Measurement, Measurement of external and core diameter, Gear Measurement, Surface Finish Measurement, Machine tool metrology, MISCELLANEOUS MEASUREMENTS.

23. Automobile Heavy Equipment

Tractors, Hydraulic system, Dump tractors and articulated hauler, Motor Graders, Compactors (Rollers), Dozers, Loaders, Excavators, Cranes, Scrapers, Lift trucks, Dredgers, Tanker Carrier.

24.04.24

Controller of Examinations
Assam Public Service Commission