

SYLLABUS OF WRITTEN TEST FOR THE POST OF ASSISTANT INSPECTOR OF MOTOR VEHICLES, CLASS-3, ADVT. NO.118/2013-14 FOR THE SUBJECT OF AUTOMOBILE ENGINEERING.

Total Questions: 300 Total Marks: 200 Duration:155 Minutes

Medium: English

1.ENGINEERING DRAWING:

Engineering curves,orthographic and isometric projections,fasteners.

2.ENGINEERING MECHANICS:

Coplanar and concurrent forces .Centre of gravity,Friction,Work-Power-Energy,Simple machines.

3.NON CONVENTIONAL ENERGY SOURCES:

Renewable sources of energy such as Hydro,Solar,Wind,Biomass,Tidal and Geothermal energy,energy conversion and auditing.

4.THEORY OF MACHINES AND STRENGTH OF MATERIALS:

Power transmission,Fly wheel,Governer,Cam and cam profile. Direct stress and strain. Shear forces and bending moment.

5.BASIC THERMODYNAMICS AND HYDROLICS:

Basic cocepts of thermodynamics-first and second law of thermodynamics.Thermodynamic cycles.Flow measurement.Working of centrifugal pump and reciprocating pumps.

6.MATERIALS AND MANUFACTURING TECHNOLOGY:

Metal working,metal casting and metal joining process.Engineering materials.Heat treatment processes.

7.AUTOMOBILE ENGINES:

Principles of I C engines,constuctional and functional details of I C engines. Combustion process of IC engines.

8.AUTO TRANSMISSION AND MECHANISM:

Clutch,Gear box, Steering mechanism.Suspension system.Rear axle assembly.

9.AUTO ELECTRICAL SYSTEM AND AUTOTRONICS:

Automobile battery.Ignition system.Charging system.Current and voltage regulation of alternator.PLC.Transducers,Sensors,Actuators and their applications in automobile.

10.FUELS AND LUBRICANTS:

Properties of Fuels, fuel additives, combustion and anti knock rating of fuels, Alternative fuels for IC engines, Lubricants-properties of lubricants, gradation of lubricating oil, fluid friction and theory of lubrication.

11.BASIC AUTOMOBILE DESIGN:

Types of stresses.General design considerations. Design of-piston, connecting rod, crank shaft, gear box.

12. TRANSPORT MANAGEMENT AND MOTOR INDUSTRY:

Transport authorities, Licencing, Regulations of motor vehicles, Motor vehicle insurance, Control of traffic.

13. VEHICLE BODY ENGINEERING AND DYNAMICS:

Miscellaneous body service. Minor and major body repairs. Vehicle-Balancing, Vibrations and performance.

14. DIAGNOSIS AND TESTING OF AUTOMOBILES:

Testing of various elements of the automobile systems-Battery, clutch, brakes, wheels and tyres (wheel alignment, wheel balancing), etc. Performance test.

15. VEHICLE AIR CONDITIONING:

Fundamentals of vehicle air conditioning. Servicing of vehicle air conditioning and Heating systems.

16. AUTOMOBILE POLLUTION CONTROL ENGINEERING:

Exhaust gasses emission control systems. CNG conversion, Automobile noise and its control. National and International standard norms for exhaust gas pollution control. PUC certification.