

J.P. Board of Departmental Examination
DEPARTMENTAL EXAMINATION OF IAS/HAS OFFICERS OF
HIMACHAL PRADESH
October, 2014

Paper: 12

Motor Mechanism and Driving

Time: 1.30 hours

Maximum Marks = 50

Note:-

1. Candidate may answer the question in Hindi or English.
2. Attempt all questions from Part A and any five from Part-B.
3. Bar Act is allowed.

PART-A

Q.No.1 Explain the functions of any five in the motor vehicle. (1X5=5)

- a) Differential
- b) Speedometer.
- c) Thermostat
- d) Axle shaft
- e) Gear box
- f) Turbocharger
- g) Head gasket
- h) Fuel injection pump

Q.No. 2 Attempt any five question (2X5=10)

- a) State four advantages of power steering used in an automobile.
- b) Explain briefly function of Storage battery.
- c) What is the effect of Camber on steering control and tyre wear?
- d) What are the functions of a shackle pin?
- e) Explain the function of Engine foundation.
- f) Why 'Multivalve' Engines are more fuel efficient than 'Two-Valves/Cylinder' ones?
- g) Explain briefly working of engine cooling system.
- h) State any four advantages of independent suspension system over rigid axle suspension system.
- i) Explain Blow by.

Q.No.3 Answer any ten questions by selecting the correct choice. (1X10=10)

1. The motion of the cam is transferred to the valves through
 - a. Pistons
 - b. Camshaft pulley
 - c. Rocker arms
 - d. Valve stems
2. The brake shoes are curved to conform to the inner diameter of the
 - a. Tyre
 - b. Brake drum

- c. Wheel
- d. Pedal
- 3. The size of an engine cylinder is referred to in terms of its
 - a. Bore and length
 - b. Diameter and bore
 - c. Bore and stroke
- 4. The pump part that rotates and causes water circulation between the radiator and engine is called
 - a. Bypass
 - b. Fan
 - c. Impeller
- 5. In an operating engine, the hottest part of the piston is the
 - a. Head
 - b. Pin bosses
 - c. Ring grooves
 - d. Skirt
- 6. When preparing electrolyte, it is important to remember that
 - a. Acid should be poured into water
 - b. Acid and water should be poured together
 - c. Water should be poured into acid
- 7. The device for smoothing out the power impulses from the engine is called the
 - a. Clutch
 - b. Flywheel
 - c. Camshaft
- 8. Aluminum alloy pistons are preferred because
 - a. They are good absorbers of shock
 - b. They are having less weight
 - c. They have good water resistance
 - d. They are very strong in tension
- 9. The ratio of the cylinder volume at BDC and the clearance volume is called
 - a. Clearance ratio
 - b. Compression ratio
 - c. Volumetric ratio
- 10. The most commonly used material for tyre tubes is
 - a. Butyl
 - b. Natural rubber
 - c. Butane
- 11. The operation of removing trapped air from the hydraulic braking system is known as
 - a. Trapping
 - b. Bleeding
 - c. Tapping
 - d. Cleaning

12. In the diesel engine, the compression ratio is as high as

- a. 10:1
- b. 5:1
- c. 16:1

PART-B

Q.No. 4. As per provision of the Motor Vehicle Act, define any five of the following:-

- a. Gross Vehicle weight.
- b. Transport Vehicle.
- c. Contract carriage.
- d. Maxi cab.
- e. Educational Institution Bus.
- f. Articulated vehicle.
- g. Certificate of Registration

(1X5)

Q.No.5. What is the role of any two of the following authorities?

- a. State Transport Appellate Tribunal
- b. Motor Accident Claim Tribunal
- c. Regional Transport Authority.

(2.5X 2=5)

Q.No.6 What is procedure envisaged under Motor Vehicle Act 1988 for regulating Contract carriage?
(5)

Q.No. 7 Under what circumstances Driving License can be suspended and cancelled.
(5)

Q.No.8. Explain law relating to removal and disposal of abandoned or left unattended Vehicle.
(5)

Q.No.9 Why insurance of Motor vehicle is necessary? Explain briefly relevant Provisions with regard to insurance of motor vehicle contained in Motor Vehicles Act, 1988.
(5)

Q.No.10 What are the essential documents/tools required to be kept always with vehicle during operation?
(5)