

H.P.BOARD OF DEPARTMENTAL EXAMINATION
DEPARTMENTAL EXAMINATION OF IAS/HAS OFFICERS OF
HIMACHAL PRADESH
October, 2016

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. Bare Act is allowed.

PART-A

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

- a) Differential
- b) Head gasket
- c) Gear box
- d) Universal joints
- e) Ignition Switch
- f) Axle shaft
- g) Turbocharger
- h) Wind screen wiper

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

- a) Define Turning Radius.
- b) What are the functions of a shackle pin?
- c) Explain briefly working of engine cooling system.
- d) Why the four stroke engines do not require 2T oil unlike the two stroke engines?
- e) How are the wheels and tyres designated?
- f) Explain briefly function of Storage battery.
- g) State any four advantages of independent suspension system over rigid axle suspension system.
- h) Explain Blow by.

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

1. The brake shoes are curved to conform to the inner diameter of the
 - a. Pedal
 - b. Wheel
 - c. Brake drum
 - d. Tyre

2. The device for smoothing out the power impulses from the engine is called the
 - a. Camshaft
 - b. Flywheel
 - c. Clutch

3. The motion of the cam is transferred to the valves through
 - a. Pistons
 - b. Camshaft pulley
 - c. Valve stems
 - d. Rocker arms
4. The size of an engine cylinder is referred to in terms of its
 - a. Diameter and bore
 - b. Bore and length
 - c. Bore and stroke
5. When preparing electrolyte, it is important to remember that
 - a. Acid and water should be poured together
 - b. Water should be poured into acid
 - c. Acid should be poured into water
6. Aluminium 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
7. The pump part that rotates and causes water circulation between the radiator and engine is called
 - a. Impeller
 - b. Fan
 - c. Bypass
8. What type of bearing is used for main bearing and connecting rod bearings?
 - a. Ball bearings
 - b. Plain bearings
 - c. Needle roller bearing
 - d. Taper roller bearing
9. In the diesel engine, the compression ratio is as high as
 - a. 10:1
 - b. 16:1
 - c. 5:1
10. In an operating engine, the hottest part of the piston is the
 - a. Head
 - b. Ring grooves
 - c. Skirt
 - d. Pin bosses
11. Which one of the following is not a trade name of tractor in India
 - a. Escort
 - b. Kirloskar

- c. Standard
- d. HMT

12. The ratio of the cylinder volume at BDC and the clearance volume is called
- a. Clearance ratio
 - b. Volumetric ratio
 - c. Compression ratio

PART-B

Q.No. 4. As per provision of the Motor Vehicle Act, define any five of the following:-
(1X5)

- a. Gross Vehicle weight.
- b. Maxi cab.
- c. Certificate of Registration
- d. Contract carriage
- e. Articulated vehicle.
- f. Trailer.
- g. Route.

Q.No.5. What is the role of any two of the following authorities? (2.5X 2=5)

- a. State Transport Authority.
- b. Motor Accident Claim Tribunal.
- c. Registering & Licensing Authority.

Q.No. 6. Explain law relating to grant of inter-State route permits for playing stage Carriage buses. (5)

Q.No.7 Explain procedure laid down in Motor Vehicles Act for obtaining driving License of light motor vehicle and heavy motor vehicle and validity thereof. (5)

Q.No.8. What are the essential documents/ tools required to be kept always with Vehicle during operation? (5)

Q.No.9. Why insurance of vehicle is necessary and what is effect of non- insurance of Motor vehicle? Which of the Motor Vehicles can be exempted from Insurance and by whom? (5)

Q.No. 10 Explain law relating to licensing and regulation of establishments for imparting instructions in driving of motor vehicles. (5)

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