

313314

12425

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
  - (2) Answer each next main Question on a new page.
  - (3) Illustrate your answers with neat sketches wherever necessary.
  - (4) Figures to the right indicate full marks.
  - (5) Assume suitable data, if necessary.
  - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
  - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

**1. Attempt any FIVE of the following :**

**10**

- (a) State the necessity of frames in automobiles.
- (b) Define the terms Chassis in automobile.
- (c) List different clutch lining materials.
- (d) State the principle on which friction clutch works.
- (e) State the functions of gear box.
- (f) State types of automobile gear boxes.
- (g) State the effects of incorrect tyre inflation.

**2. Attempt any THREE of the following :**

**12**

- (a) State different loads acting on frame.
- (b) Describe working of single plate clutch with its application.
- (c) Explain with neat sketch working of transfer case.
- (d) "Automatic transmissions are better option than manual transmission." Justify statement with suitable reasons.



- 3. Attempt any THREE of the following : 12**
- (a) Classify vehicle layout with respect to
    - (i) Location of engine
    - (ii) Arrangement of engine
    - (iii) Application
    - (iv) No. of live axles
  - (b) Describe the working of overdrive mechanism in automobiles.
  - (c) Describe with neat sketch working of torque tube drive.
  - (d) State the functions of universal joint and slip joint.
- 4. Attempt any THREE of the following : 12**
- (a) Describe working of FERWD layout with suitable example.
  - (b) Describe with neat sketch working of constant mesh gear box.
  - (c) Give tyre designation with one example and interpret the meaning of terms involved in it.
  - (d) Describe construction details of hollow and solid propeller shaft.
  - (e) State requirements of automobile clutches.
- 5. Attempt any TWO of the following : 12**
- (a) State necessity of differential on a vehicle. Draw neat sketch of the differential unit and label all parts.
  - (b) “The motorcycle uses multiplate clutch.” Justify your answer comparing single plate clutch with multiplate clutch.
  - (c) Describe construction and working of CVT with application.
- 6. Attempt any TWO of the following : 12**
- (a) Sketch arrangement of following types of rear axles and give one application of each :
    - (i) Semi-floating
    - (ii) Full floating
  - (b) Describe construction and working of front wheel drive shaft.
  - (c) Compare tubed tyre and tubeless tyre.
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