

22442

23242

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) 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) Define king-pin inclination and Turning radius.
 - b) Write functions of auto body.
 - c) State two properties of brake fluid.
 - d) List major components of Air braking system.
 - e) List types of springs used in automotive suspension system.
 - f) List different types of stab axle.
 - g) Define pitching and rolling.

- 2. Attempt any THREE of the following: 12**
 - a) Describe with sketch Ackerman steering gear mechanism.
 - b) Compare Disc brake with Drum brake.
 - c) Explain the operation of Telescopic shock absorber with sketch.
 - d) Explain the working of Airbags with neat sketch.

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- 3. Attempt any THREE of the following:** **12**
- a) Explain working of hydraulic power steering with sketch.
 - b) Explain working of Rack and pinion type steering gear box with sketch.
 - c) Give the classification of automotive brakes.
 - d) Suggest relevant suspension system for heavy vehicle with justification.
- 4. Attempt any THREE of the following:** **12**
- a) Give applications of any two types of stub axles and justify their use.
 - b) Explain working of exhaust brake with neat sketch.
 - c) Explain working of anti lock braking system with sketch.
 - d) Explain the working of anti Roll bar in automobile with sketch.
 - e) Describe working of telescopic shock absorber with neat sketch.
- 5. Attempt any TWO of the following:** **12**
- a) Compare independent suspension with rigid axle suspension system and justify their applications.
 - b) Describe with sketches, streamlining of automobile body.
 - c) Draw the layout of vapour compression system and explain its working.
- 6. Attempt any TWO of the following:** **12**
- a) Write types of Refrigerants used in HVAC system. Write their properties.
 - b) Sketch different types of automobile bodies.
 - c) State different resistances faced by vehicle. Explain stability of vehicle on turn.
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