

17409

15162

3 Hours / 100 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data, if necessary.
(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) **Attempt any SIX of the following:** **12**
- (i) Define understeering and oversteering.
 - (ii) List main parts of a power steering system.
 - (iii) State friction materials used for brake shoes.
 - (iv) State the purpose of compressor and condenser used in car air conditioner.
 - (v) Define gradability and draw bar pull.
 - (vi) Give four main differences between a drum brake and disc brake.
 - (vii) Mention different types of a front axle.
 - (viii) Write the application of a torsion bar.
- b) **Attempt any TWO of the following:** **8**
- (i) Explain the repainting procedure of a old vehicle body.
 - (ii) Explain the concept of streamline shape of a vehicle body.
 - (iii) Explain the working of a collapsible steering.

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- 2. Attempt any FOUR of the following:** **16**
- a) Describe a front wheel assembly with a neat sketch.
 - b) Explain correct steering angle and turning radius.
 - c) Explain toe-in and toe-out stating its necessity.
 - d) Draw a neat sketch of air braking system and state its working principle.
 - e) Explain painting procedure of a new vehicle in brief.
 - f) State how a mechanical brake system works with the help of a neat sketch.
- 3. Attempt any FOUR of the following:** **16**
- a) Describe construction and working of a master cylinder.
 - b) State concept and working of antilock braking system.
 - c) Explain with a neat sketch a semielliptical leaf spring used in a heavy vehicle.
 - d) Give description of vapour compression cycle with its components.
 - e) Explain types of vehicle bodies.
 - f) Explain the importance of exhaust brake and emergency brake.
- 4. Attempt any TWO of the following:** **16**
- a) Explain construction and working of a worm and roller type steering gear box with its application.
 - b) Describe working of a hydraulic brake system with the help of diagram.
 - c) Distinguish between wishbone type and Mcpherson strut independent suspension systems.

- 5. Attempt any FOUR of the following:** **16**
- a) Explain with neat sketches:
 - (i) camber and
 - (ii) caster
 - b) Explain function of air bags with example.
 - c) State uses of antiroll bar and draw its neat sketch.
 - d) Explain humidity control system in HVAC.
 - e) Explain working of telescopic shock absorber.
 - f) State human comfort conditions used in car air conditioning system.
- 6. Attempt any TWO of the following:** **16**
- a) Explain protective and anti corrosive treatment of vehicle body.
 - b) Draw layout of HVAC and explain its operation.
 - c) Describe stability of vehicle on slope and turn.
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