

22442

12425

03 Hours / 70 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. Attempt any FIVE of the following : 10
- a) Define caster angle.
 - b) State types of front axle and write their purpose.
 - c) List any four properties of brake fluid.
 - d) Classify brakes on the basis of method of actuation.
 - e) List types of suspension system used in four wheeler.
 - f) Name the different materials are used for vehicle body construction.
 - g) Define rolling resistance.
2. Attempt any THREE of the following : 12
- a) List the types of stub axle arrangement and draw elliot type stub axle.
 - b) Distinguish between air brakes and hydraulic brakes.
(Any four points)
 - c) Draw neat labelled sketch of gas filled shock absorber.
 - d) Explain body insulation and sealing with relevant justification.

P.T.O.

- 3. Attempt any THREE of the following :** **12**
- a) Draw a neat labelled sketch of recirculating ball type steering gear box.
 - b) Sketch and explain Ackermann steering gear mechanism, when wheels of vehicle turn to right.
 - c) Draw neat labelled sketch of hydraulic braking system.
 - d) Explain with sketch the working of suspension system used in TATA 407.
- 4. Attempt any THREE of the following :** **12**
- a) Describe with sketch construction of front wheel assembly.
 - b) Compare hydraulic assisted power steering with electric assisted power steering with their applications.
 - c) Draw neat labelled sketch of wheel cylinder.
 - d) Differentiate between drum and disc brake.
 - e) Describe with sketch the working of Mcpherson strut type independent suspension.
- 5. Attempt any TWO of the following :** **12**
- a) Differentiate between independent suspension system and rigid axle suspension system.
 - b) List the three safety devices used in modern cars with their functions.
 - c) Draw a layout of HVAC and explain its working.
- 6. Attempt any TWO of the following :** **12**
- a) State the factors that determine the human comfort conditions for car air conditioning.
 - b) State the need of painting and write procedure of painting.
 - c) Explain with sketches bouncing, rolling and pitching movement in relation to vehicle body.
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