

22442

22223

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) Define turning radius.
 - b) List any four components in a steering linkages for the vehicle with rigid axle suspension system.
 - c) State the function of master cylinder.
 - d) List any four properties of brake fluid.
 - e) State the two advantages of air suspension system.
 - f) Write functions of auto body.
 - g) Define rolling resistance.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Sketch the layout of steering linkage for the vehicle with independent suspension system and label the major parts.
 - b) Distinguish between air brakes and hydraulic brakes. (any four points)
 - c) Draw a sketch of wishbone type of independent suspension and explain its working.
 - d) Explain body insulation and sealing with relevant justification.
- 3. Attempt any THREE of the following:** **12**
- a) Explain reverse elliot type stub axle with sketch.
 - b) Sketch and explain Ackermann steering mechanism, when wheels of vehicle turn to right.
 - c) Draw neat labelled sketch of wheel cylinder.
 - d) Explain with sketch working of suspension system used in MARUTI-800.
- 4. Attempt any THREE of the following:** **12**
- a) Describe with sketch working of Rack and pinion type steering gear box.
 - b) With the help of sketch explain the term 'under steering'.
 - c) Draw neat labelled sketch of hydraulic braking system.
 - d) Compare disc brake with drum brake and list their applications.
 - e) Explain working of antiroll bar for independent suspension with sketch.
- 5. Attempt any TWO of the following:** **12**
- a) Differentiate between independent suspension system and rigid axle suspension system.
 - b) Explain types of materials used in body construction.
 - c) Draw a layout of HVAC and explain its working.

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[3]

Marks

6. Attempt any TWO of the following:

12

- a) State the factors that determine the human comfort conditions for car air conditioning.
 - b) Explain with neat sketch the construction of collapsible steering.
 - c) Explain with sketches Pitching, Rolling and Yaw movement in relation to vehicle body.
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