

# 314343

**12526**

**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) List different types of stub axle.
  - b) Define king-pin inclination and Turning radius.
  - c) State the function of master cylinder.
  - d) List any two desirable properties of brake fluid.
  - e) State the types of safety devices used in automobiles.
  - f) List different materials used in body construction.
  - g) Define Air resistance and Rolling resistance.

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- 2. Attempt any THREE of the following : 12**
- a) Explain working of antiroll bar for independent suspension with sketch.
  - b) Explain working of hydraulic power steering with sketch.
  - c) Distinguish between drum brakes and disc brakes. (Any four points)
  - d) Describe with sketch working of Rack and Pinion type steering gear box.
- 3. Attempt any THREE of the following : 12**
- a) Explain Ackerman steering gear mechanism with label sketch.
  - b) Draw a layout of steering linkage for a vehicle with independent suspension system.
  - c) Explain with sketch the constructional feature of Hydraulic braking system.
  - d) Differentiate between McPherson strut and Wishbone type suspension system.
- 4. Attempt any THREE of the following : 12**
- a) Explain working of antilock braking with neat sketch.
  - b) Distinguish between Air brake and Hydraulic brake. (Any four points)
  - c) Draw a neat labeled sketch of Elliot and Reverse Elliot Stub axle.
  - d) With the help of sketch explain the term 'Under steering'.
  - e) Explain with neat sketch working of Gas filled shock absorber.

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**Marks**

**5. Attempt any TWO of the following : 12**

- a) Explain the term 'streamlining'. State its effect on vehicle with suitable example.
- b) Explain with neat sketch the construction of collapsible steering.
- c) With relevant justification explain body insulation and sealing.

**6. Attempt any TWO of the following : 12**

- a) Suggest relevant suspension system for heavy vehicle with neat labelled sketch and justification.
  - b) Sketch different types of automobile bodies and name it.
  - c) Draw neat labelled sketch of Air-bag and explain inflation of Air-Bag during collision. Name the gas used in Air-Bag.
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