

17526

11819

3 Hours / 100 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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. (A) Attempt any **THREE** of the following : 12
- (a) Explain importance of aerodynamic shape of car body.
  - (b) Justify use of universal and sliding joints in propeller shaft.
  - (c) List requirements of steering system.
  - (d) Define following terms with suitable sketches :
    - (i) Camber
    - (ii) Toe-in
- (B) Attempt any **ONE** of the following : 6
- (a) Write advantages of front engine front wheel drive vehicle.
  - (b) Draw neat sketches for diaphragm spring type clutch in engage and disengage position. Name the components.

- 2. Attempt any FOUR of the following : 16**
- (a) State advantages and disadvantages of Gas (LPG, CNG) operated automobiles.
  - (b) Draw neat sketch of overdrive and explain its working.
  - (c) State the components of pneumatic braking system with it's function.
  - (d) Explain the concept of double declutching related to constant mesh gear box.
  - (e) Explain with sketch Elliot stub axle.
- 3. Attempt any TWO of the following : 16**
- (a) Explain with sketch construction and working of epicyclic gear box.
  - (b) Explain working of recirculating ball type steering system with sketch.
  - (c) Differentiate between :
    - (i) Disc brake and Drum brake
    - (ii) Hydraulic brake and Pneumatic brake
- 4. (A) Attempt any THREE of the following : 12**
- (a) Explain necessity of suspension system in automobiles.
  - (b) Explain air suspension with sketch.
  - (c) Explain with sketch Bendix drive.
  - (d) Explain different wire colour codes used in automobile wiring system.
- (B) Attempt any ONE of the following : 6**
- (a) State important precautions to be taken while using air conditioning system in car. (any eight)
  - (b) Explain working of car air conditioning system with layout diagram.

**5. Attempt any FOUR of the following :****16**

- (a) State advantages of electronic ignition system.
- (b) Give any four probable causes of tyre wear and give it's remedies.
- (c) Describe working of Mac-Pharson suspension system with neat sketch.
- (d) State & explain various types of automobile bodies.
- (e) List various types of rims used in automobiles.

**6. Attempt any TWO of the following :****16**

- (a) How batteries are rated ? Explain testing of lead acid battery. Elaborate procedure of testing.
  - (b) State wheel balancing and wheel alignment. Describe its procedure.
  - (c) (i) Sketch and explain working of fuel level gauge.  
(ii) State advantages and disadvantages of tubeless tyres.
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