

# 17526

**14115**

**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) 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.
  - (8) Preferably, write the answer in sequential order.

**Marks**

1. a) Attempt any **THREE** of the following: **12**
- (i) Name major components of automobile and state the function of any four components.
  - (ii) State the necessity of transmission system in Automobile.
  - (iii) Define :
    - 1) Negative caster
    - 2) Negative camber
  - (iv) Give the classification of brakes and braking systems.

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- b) **Attempt any ONE of the following:** **06**
- (i) Enlist the various types of vehicle layout and explain Front Engine Front Wheel drive.
  - (ii) 1) State working principle of clutch. **2**  
2) Explain with neat sketch, the working of Diaphragm type clutch. **4**
2. **Attempt any FOUR of the following:** **16**
- a) State the advantages of LPG and CNG operated engines.
  - b) State the function of propeller shaft. Explain the necessity of sliding joint and universal joint provided in propeller shaft.
  - c) Explain the working of differential with neat sketch.
  - d) Compare Hotchkiss drive and Torque tube drive.
  - e) Differentiate between Drum Brake and Disc Brake.
3. **Attempt any TWO of the following:** **16**
- a) Explain with neat sketch, working of synchromesh gear box.
  - b) Describe pneumatic braking system with neat sketch and state advantages.
  - c) Explain working of power steering of any one type with neat diagram.
4. a) **Attempt any THREE of the following:** **12**
- (i) Explain the need of suspension system in automobiles.
  - (ii) Explain working of Telescopic shock absorber with neat sketch.
  - (iii) Explain the function of Bendix drive in starting system with a neat sketch.
  - (iv) Explain wire harness and state any four colour codes used in wiring system of automobile.

	<b>Marks</b>
b) <b>Attempt any <u>ONE</u> of the following:</b>	<b>06</b>
(i) 1) State the important precautions to be taken while using air conditioning system of a vehicle (any four)	4
2) Why Modern car uses R134a refrigerant instead of R-12	2
(ii) Draw a layout of an air-conditioning system of a car and explain its working.	
<b>5. Attempt any <u>FOUR</u> of the following:</b>	<b>16</b>
a) Explain the importance of aerodynamic shape of a car body.	
b) State the various types of automobile bodies.	
c) Compare tubed tyres with tube-less tyres.	
d) Explain wheel balancing. Describe its procedure.	
e) Describe electronic ignition system with neat sketch.	
<b>6. Attempt any <u>TWO</u> of the following:</b>	<b>16</b>
a) Explain with neat sketch Mac-Pherson type of suspension system. Give name of vehicles in which this type of suspension system is used. Give any two advantages of it.	
b) State the function of Battery. List the main components of lead acid battery. Explain its construction with neat sketch.	
c) State the need of charging system. Explain construction and operation of charging system used in automobile.	

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