

12098

11122

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

Marks

- 1. Attempt any FIVE of the following: 20**
- State the salient features of Ackerman steering linkage with neat sketch.
 - Define following terms:
 - Perfect steering
 - Turning circle
 - What is the difference between ‘Power assisted’ and ‘Power operated’ brakes?
 - Enumerate different considerations for classifying the automotive brakes.
 - State the advantages and disadvantages of Torsion bar.
 - Briefly explain procedure of painting of a new car.
 - What are the different human comfort conditions considered in a car air conditioning?

P.T.O.

- 2. Attempt any FOUR of the following:** **16**
- a) Differentiate between Elliot and Reverse Elliot with neat sketch.
 - b) Draw a neat sketch of Recirculating Ball type steering gear and state its application.
 - c) Explain with sketch Rear wheel Antilock Braking system.
 - d) Describe the function of Direct acting shock Absorber under compression with simple sketch.
 - e) Enlist the various safety devices located in modern automobiles and explain any one of them.
 - f) Differentiate between Traction and Tractive effort.
- 3. Attempt any FOUR of the following:** **16**
- a) Define cornering force. What are the effects of slip angle inflation pressure on cornering force?
 - b) What is the effect of castor on vehicle stability? Explain with sketch.
 - c) What is 'transfer of weight' in brakes? What is its effect?
 - d) What are the function of 'intake port' and 'by pass port' in a master cylinder?
 - e) Explain the working of gas filled shock absorber with sketch.
 - f) Enlist the different types of refrigerants used in car A/c with state their properties.
- 4. Attempt any FOUR of the following:** **16**
- a) Out of the disc and the drum brakes, which have better anti-fade characteristics? Why?
 - b) State the importance of emergency brake and its working principle.
 - c) State the effect of Aerodynamics on vehicle performance.

- d) Explain the different human comfort conditions used in car A/c.
- e) State the salient features of humidity control system in car A/c
- f) Explain the causes and remedies for:
 - (i) Insufficient refrigerant
 - (ii) Faulty compressor

5. Attempt any TWO of the following: 16

- a) What is the purpose of Independent suspension? How it is achieved in front and rear axles?
- b) Explain the concept of stability of vehicle on slopes and turn.
- c) What is Protective and Anti-corrosive treatment used in painting? How it is carried out?

6. Attempt any TWO of the following: 16

- a) Explain with neat sketch, 'Front wheel Assembly'.
 - b) How, tandem master cylinder differ from usual master cylinder? Explain with sketch.
 - c) State the need of stabilizer bar with simple sketch.
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