

17409

21314

3 Hours / 100 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data, if necessary.
- (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
- (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) Attempt any **SIX** of the following: **12**
- i) State types of stub axles?
- ii) Define - Caster
- iii) State the functions of brake.
- iv) State the necessity of suspension system.
- v) State any four materials used for body construction.
- vi) List any four safety devices used in automobile.
- vii) State any two refrigerant used in car air conditioning.
- viii) Define - Rolling

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- b) **Attempt any TWO of the following:** **8**
- i) Sketch elliot and reverse elliot stub axles.
 - ii) State types of front axles and explain any one.
 - iii) Classify the brakes.
2. **Attempt any FOUR of the following:** **16**
- a) Explain Toe-in and Toe-out and state its effect.
 - b) Draw neat sketch of rack and pinion type steering gear box.
 - c) State any two friction materials used for brake shoes and give its coeff. of friction.
 - d) Differentiate between disc-brake and drum-brake.
 - e) Sketch and explain Mc-pherson struttype independent suspension.
 - f) State the function of anti roll bar and give application.
3. **Attempt any FOUR of the following:** **16**
- a) State the properties of brake fluid.
 - b) Explain working of anti lock brake system.
 - c) Define - oversteering and under steering
 - d) Explain working of air bags and give its application.
 - e) Explain repainting procedure for used car.
 - f) State any four types of bodies and give its manufactures name.

- 4. Attempt any TWO of the following: 16**
- a) Explain construction and working of air suspension system with neat sketch.
 - b) Explain linkage power steering with neat sketch and give its application.
 - c) Explain working of vacuum assisted braking system with neat sketch and give its application.
- 5. Attempt any FOUR of the following: 16**
- a) Describe vapour compression cycle with proper sketch.
 - b) State and explain human comfort condition.
 - c) Explain the necessity of humidity control.
 - d) Define - Traction and Tractive effort
 - e) Define - Pitching and Bouncing
 - f) Explain stability of vehicle on Turn.
- 6. Attempt any TWO of the following: 16**
- a) Explain construction and working of telescopic shock absorber with neat sketch.
 - b) Explain the procedure for protective, anticorrosive treatment and painting?
 - c) Draw the layout of HVAC and explain its operation.
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