

12098

21314

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 **SIX** of the following: 12
- i) Sketch Elliot and reverse Elliot stub axle.
 - ii) Define camber and caster.
 - iii) List the types of suspension system.
 - iv) State necessity of suspension system.
 - v) What are the functions of frame?
 - vi) List the types of frames.
 - vii) State function of car air conditioning.
 - viii) Define air resistance.

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- b) Attempt any **TWO** of the following: **08**
- i) Explain working of rack and pinion type of steering gear box.
 - ii) Explain Ackerman Principle.
 - iii) Explain the principle of braking system.
2. Attempt any **FOUR** of the following: **16**
- a) Define terms 'understeering' and 'oversteering'.
 - b) Give classification of braking system.
 - c) With neat sketch, explain working of telescopic shock absorber.
 - d) List any four advantages of Independent Front End Suspension.
 - e) State the effect of stream lining on vehicle performance.
 - f) Explain vapour compression cycle.
3. Attempt any **TWO** of the following: **16**
- a) Explain with neat sketch Integral power steering.
 - b) Describe the construction and working of disc brake with neat sketch.
 - c) Explain with neat sketch working of Mc Pherson strut type suspension system.
4. Attempt any **TWO** of the following: **16**
- a) Explain with neat sketch a type of steering mechanism.
 - b) Explain the construction and working of hydraulic braking system.
 - c) i) Explain antiroll bar working.
ii) Explain gas filled shock absorber working.

- 5. Attempt any TWO of the following: 16**
- a) What are the materials used for body construction and explain the car body construction.
 - b) Sketch the layout and operation of HVAC.
 - c) Define :
 - i) Draw bar pull
 - ii) Pitching
 - iii) Rolling
 - iv) Bouncing
- 6. Attempt any TWO of the following: 16**
- a) Explain the concept and working of Antilock breaking system.
 - b) Explain the protective and anticorrosive treatment with painting procedure.
 - c)
 - i) Name any two refrigerants with properties, used in air conditioning.
 - ii) Explain human comfort conditions.
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