

Total No. of Questions : 12]

SEAT No. :

P1699

[4859]-39

[Total No. of Pages : 3

B. E. (Mechanical)

**a : AUTOMOBILE ENGINEERING
(2008 Course) (Semester-I)(Elective-II)**

Time : 3Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) Answer 3 questions from Section-I and 3 questions from Section-II.*
- 2) Answer to the two sections should be written in separate answer books.*
- 3) Neat diagrams must be drawn wherever necessary.*
- 4) Figures to the right indicate full marks.*
- 5) Use of electronic pocket calculator is allowed.*
- 6) Assume suitable data, if necessary.*

SECTION-I

- Q1)** a) Explain with neat sketch layout of a four wheel drive. [8]
- b) What is chassis? What are the various components of chassis? Indicate their functions. [8]

OR

- Q2)** a) Discuss various types of car bodies with suitable examples. [8]
- b) Explain various section used for side members and cross members of Chassis frame. [8]

- Q3)** a) Compare Synchromesh gear box with Constant mesh gear box. Explain the purpose of Synchronizer and its operation in a gear box. [8]
- b) Explain with neat sketch construction and working of multi-plate clutch. [8]

OR

- Q4)** a) Describe the operation of non-slip differential used in automobiles. [6]
- b) Explain with neat sketch construction and working of overdrive. [10]

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- Q5)** a) Sketch recirculating ball type steering gear and explain its working. [6]
- b) Explain with neat sketch construction and working of collapsible steering. [6]
- c) Describe live axle and dead axle. [6]

OR

- Q6)** a) Discuss necessity of Wheel Alignment and Wheel Balancing with their explanation. [8]
- b) How are the tyres are classified and rated ? What are advantages of tubeless tyre over tubed tyre. [10]

SECTION-II

- Q7)** a) Classify Brakes and explain Anti-skid Braking System (ABS) with neat sketch. [10]
- b) What is interconnected suspension ? Sketch and describe in briefly. [8]

OR

- Q8)** a) Explain hydro gas suspension system. Also write its advantages and disadvantages. [10]
- b) Describe servo and power braking system with neat labelled sketch. [8]

- Q9)** a) Describe vehicle electrical systems with neat labelled layout. [8]
- b) Explain with neat sketch of lead acid battery. [8]

OR

- Q10)** a) Explain with neat sketch of electrical car layout. [8]
- b) Explain with neat sketch charging system used in automobiles. [8]

- Q11)** a) Necessity of NVH analysis in Automobiles, explain in detail. [8]
b) Justify importance of Vehicle interiors and Ergonomics in automotive safety. [8]

OR

Q12) Write short notes:(Any four) [16]

- a) Vehicle performance curve.
- b) Vehicle charging system.
- c) Sensors and actuators.
- d) Dashboard instrument.
- e) Air bags & seat belt.

