

Roll No.

Total No. of Questions : 09]

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B. Tech. (Sem. – 3rd)
AUTOMOTIVE CHASSIS AND COMPONENTS
SUBJECT CODE : AE – 203
Paper ID : [A0703]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours**Maximum Marks : 60****Instruction to Candidates:**

- 1) Section - A is **Compulsory**.
- 2) Attempt any **Four** questions from Section - B.
- 3) Attempt any **Two** questions from Section - C.

Section - A**Q1)****(10 × 2 = 20)**

- a) Enumerate the merits and de-merits of front engine rear drive chassis layout.
- b) State the function of a differential unit.
- c) What is engine tuning?
- d) Write note on shock absorbers?
- e) How are the wheels and tyres designated?
- f) How automobiles are classified according to their body types?
- g) Define “Toe-in”.
- h) What are the differences between a constant mesh and sliding mesh gear train?
- i) Explain castor and camber in relation to front wheel geometry.
- j) What is the need of wheel balancing of an automobile?

Section - B**(4 × 5 = 20)**

- Q2)** Explain with the help of neat sketch any one layout for an automobile engine.
- Q3)** Differentiate between semi floating axle, three quarter floating axle and full floating axle.
- Q4)** Explain the working principle of hydraulic braking system with simple sketches.
- Q5)** Describe the operation of non-slip or limited slip differential.
- Q6)** Discuss different tyre-carcass types. Compare the radial and bias-ply type carcass tyres.

Section - C

(2 × 10 = 20)

- Q7)** (a) Explain the purpose of motor vehicle suspension. What are the advantages of independent suspension over solid axle suspension?
(b) Explain the constructional aspects of the rear leaf spring suspension system.
- Q8)** (a) Explain the steering geometry and the effects of any two angles on the dynamics of the vehicle.
(b) Discuss the constructional details of cross ply tyres.
- Q9)** With the aid of neat sketches, explain the construction and working of disc brake system in detail.

