

Exam. Code: 0943
Sub. Code: 6743

2122
B.E. (Mechanical Engineering)
Seventh Semester
MEC-703: Automobile Engineering

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit. Support your answers with neat diagrams as applicable.

x-x-x

I. Answer the following:-

- a) Give relation between engine revolution and vehicle speed.
- b) Differentiate between supercharger and turbocharger
- c) What is the purpose of using hypoid gears in final drive of automobile?
- d) How the speed fluctuations in universal joint of the propeller shaft can be taken care of?
- e) Define variable-rate springs and mention when they are used in automotive suspension. (5x2)

UNIT - I

- II. Derive an expression to calculate the equivalent weight of the vehicle in motion including the inertia and other effects. Also find out the gear ratio for maximum acceleration. (10)
- III.
 - a) Explain with sketch arrangement and working of CDRI fuel injection system used in CI engines.
 - b) Explain the necessity of a differential in an automobile. Discuss with sketch the operation of limited slip differential. (2x5)
- IV. Explain with diagram sensing and actuation strategies that are used in automatic transmission in automobiles. (10)

P.T.O.

(2)

UNIT - II

- V. Discuss with a neat sketch working of interconnected suspension system. How it is better than conventional suspension system? (10)
- VI. Why do we need power steering? Discuss the working of power steering system and list its salient features. (10)
- VII. a) Discuss with sketch different types of drum brakes used in automobiles along with their merits demerits and applications.
- b) What different types of tires are used' in automobiles? Explain with sketch the features of radial ply tires. How tires are designated? (2x5)

X-X-X