

B.Tech IV Year I Semester (R13) Supplementary Examinations June 2017

**AUTOMOBILE ENGINEERING**

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 70

**PART – A**

(Compulsory Question)

\*\*\*\*\*

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Name two methods of chassis construction.
  - (b) What are the materials used for chassis frame?
  - (c) Name the various diseases caused by auto exhaust.
  - (d) Name the two types of catalytic convertors.
  - (e) What is an over drive?
  - (f) Name the common clutch facing materials.
  - (g) Give any two requirements of a good steering system.
  - (h) What is steering ratio?
  - (i) What are the objectives of vehicle suspension?
  - (j) Name the two advantages of air suspension.

**PART – B**

(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

- 2 With a neat sketch, explain the principle of automatic transmission.

**OR**

- 3 Draw schematic diagram showing the layout of complete transmission system of a four wheeler automobile.

**UNIT – II**

- 4 Explain the effects of the factors on the formation of  $\text{NO}_x$  in air pollution.

**OR**

- 5 With a neat sketch, explain the four main circuits in electrical system of a modern automobile.

**UNIT – III**

- 6 What is the function of a clutch? And explain the requirements of clutch.

**OR**

- 7 Explain with a neat sketch the principle of differential gear.

**UNIT – IV**

- 8 Discuss in detail the Ackermann steering mechanism.

**OR**

- 9 Discuss in detail various adjustments in the steering geometry.

**UNIT – V**

- 10 Discuss in detail the basic considerations of suspension system.

**OR**

- 11 Draw a simple diagram to show the layout of a hydraulically operated four wheel brake system and explain its working in detail.

\*\*\*\*\*