

B.Tech IV Year I Semester (R15) Regular & Supplementary Examinations November/December 2019

AUTOMOBILE ENGINEERING

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- How can turbo-charging improve performance of an engine?
 - Why does the lower end of the connecting rod have to be split?
 - Mention any two uses of propeller shaft.
 - Why slip joint is important?
 - Define caster and camber.
 - What is meant by traction control?
 - What causes vapour lock in a braking system?
 - List the types of suspension systems.
 - List down the major constituents of natural gas and LPG.
 - Why fuel cells are not preferred for automobiles now?

PART – B

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

UNIT – I

- 2 (a) Draw schematic diagram showing the layout of chassis with its accessories of a four wheeler automobile.
 (b) With the help of a neat sketch, explain crankcase ventilation system.

OR

- 3 (a) Explain how the power can be transmitted in front wheel drive by using a neat diagram.
 (b) Discuss the principle of turbo charging with a neat sketch.

UNIT – II

- 4 (a) What is clutch? Explain the operation of centrifugal clutch.
 (b) Draw and explain with a simple sketch, working of a constant mesh gear box.

OR

- 5 (a) Describe the working principle of fluid flywheel in detail with the help of neat diagram.
 (b) Explain the working principle of differential with neat diagram.

UNIT – III

- 6 Explain the Davis Steering mechanism with neat diagram. Write its relative merits and demerits.

OR

- 7 Explain different types of steering gears with neat diagrams.

UNIT – IV

- 8 (a) Explain with neat sketch the working principle of shock absorber.
 (b) Explain with neat sketch the working principle of rigid axle suspension system.

OR

- 9 (a) Sketch the arrangement of pneumatic braking system used in automobiles and explain.
 (b) What are the requirements of braking fluids?

UNIT – V

- 10 (a) Why stringent norms are emphasized by pollution control boards?
 (b) Explain in detail about the engine emission control by three way catalytic converter system.

OR

- 11 (a) Name the various electrical components used in an automobile & give their functions.
 (b) Briefly discuss about Bendix drive.
