Reg. No. :

Question Paper Code : **X67502**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2020.

Sixth Semester

Mechanical Engineering

AT 1360 – AUTOMOBILE ENGINEERING

(Regulations 2008)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the main considerations in the design of vehicle structure?

2. What are various ways of controlling exhaust emissions from an automobile?

3. List out some sensors used in electronic fuel injection system.

4. What is the advantage of using solenoid switch?

5. Name some clutch facing materials.

6. What are the forces acting on rear axle?

7. Define 'understeer' and 'oversteer'. Name any three types of steering gears.

8. Enumerate different considerations for classifying the automobile brakes.

9. What are the parameters to be consider for emission euro standards?

10. Write a short note on fuel cells.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain briefly the various types of chassis construction with the help of suitable diagrams. Make a list of various components normal on the chassis. (8)

    (ii) Describe with a sketch the forced circulation system. What are its merits and demerits? (8)

    Or

    (b) (i) Describe with sketches the different methods of supercharging. (10)

    (ii) Write a note on 3-way catalytic converter. (6)

12. (a) Discuss single point fuel injection system with a schematic layout.

    Or

    (b) Write short notes on the following :

    (i) Generators. (8)

    (ii) Regulators. (8)

13. (a) What is the function of gear box? Describe clearly the construction and working of constant mesh gear box with suitable sketch.

    Or

    (b) Explain the necessity of a differential in an automobile. Discuss in detail the construction and operation of the differential.

14. (a) Discuss the function of master cylinder in a hydraulic braking system.

    Or

    (b) Draw the layout of Ackermann steering mechanism and derive the expression for perfect rolling and turning circle radii for all the four wheels.

15. (a) Explain the use of LPG in cars.

    Or

    (b) What is an electric vehicle? Discuss the function of an electric car in detail.

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