U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

February / March 2023 Semester End Main Examinations

Programme: B.E. **Semester: VII**
Branch: Mechanical Engineering **Duration: 3 hrs.**
Course Code: 20ME7DEAUE **Max Marks: 100**
Course: Automotive Engineering **Date: 28.02.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may suitably be assumed.

UNIT - I

1 a) Identify the component of automotive engine, listing out the materials and functions of each. **10**

b) State the various methods of engine cooling. **04**

c) Explain with a neat sketch the working principle of EGR System. **06**

UNIT - II

2 a) How the following parameter affect the performance of the vehicles. Explain them briefly with the help of equation. **10**
i) Acceleration ii) Air Resistance
iii) Rolling Resistance iv) Gradient Resistance

b) Explain the vehicle performance using Power - Torque characteristics curves. **10**

UNIT - III

3 a) With a neat sketch, explain the construction and working of Single plate clutch. **10**

b) What is the need for transmission box? Explain with a neat sketch Epicyclic Gear box. **10**

OR

4 a) Sketch and explain Hotchkiss Drive and Torque Tube Drive. **10**

b) Explain with a neat sketch Fluid flywheel and Torque Convertors. **10**

UNIT - IV

5 a) Define the following and explain their effects on steering : **10**
i) Camber ii) King pin inclination iii) Castor iv) Toe in and Toe out.

b) Explain the working of differential gear system when the system takes a right turn, with the help of suitable sketch. **10**

OR

6	a)	Explain the telescopic shock absorber, with the help of a neat sketch.	**10**
	b)	Draw the cross section of a tyre. Name all the features and mention the purpose of each such feature.	**10**

UNIT - V

7	a)	Explain the basic electronic Components used in automobile with a block diagram.	**10**
	b)	Explain the concept of Hybrid Technology used in automobiles.	**10**

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