

17 JUN 2023

Reg. No.

Question Paper Code

11871

B.E./B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2023

Fifth Semester

Mechanical Engineering

20MEPC501 – AUTOMOTIVE SYSTEMS

(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

Answer ALL Questions

PART - A (10 × 2 = 20 Marks)

	<i>Marks, K-Level, CO</i>
1. What are the functions of a frame?	2,K1,CO1
2. Name few components of an IC engine.	2,K1,CO1
3. What is meant by turbo charging?	2,K1,CO2
4. What is unit injection system?	2,K1,CO2
5. What are the functions of a gear box?	2,K1,CO3
6. What is tractive effort?	2,K1,CO3
7. What is meant by bleeding of brakes?	2,K1,CO4
8. What is tractive effort?	2,K1,CO4
9. Write the composition of LPG and CNG.	2,K1,CO5
10. State the advantages of fuel cell.	2,K1,CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) Explain the different components of the engine and their functions. 13,K2,CO1
OR
b) Briefly explain with sketches different types of vehicle chassis and body. 13,K2,CO1
12. a) Explain in detail about the engine emission control by three-way catalytic converter system with a neat sketch. 13,K2,CO2
OR
b) Elaborate about the working of rotary distributor type diesel injection system with neat sketch. 13,K2,CO2
13. a) State the difference between fluid flywheel and torque converter and describe the principle and working of a torque converter. 13,K2,CO3

OR

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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b) What are the types of rear axle drives and explain it with the neat sketches. *13,K2,CO3*

14. a) Draw the layout of a typical steering system used in a vehicle fitted rigid suspension configuration and briefly discuss about the function of its constituent members. *13,K2,CO4*

OR

b) With simple block diagram, analyze the working of a typical traction control system used in passenger cars. *13,K2,CO4*

15. a) Discuss about the challenges faced in production and storage of hydrogen gas. *13,K2,CO5*

OR

b) With aid of a simple sketch, discuss about the working of a solid oxide fuel cell. *13,K2,CO5*

PART C (1 × 15 = 15 Marks)

16. a) Discuss the construction and working principle of 3-way Catalytic Controller. List the emissions controlled by using Catalytic controller. *15,K2,CO6*

OR

b) Explain how diethyl ether in IC engines influencing the emissions also state its merits and demerits. *15,K2,CO6*