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**Presidency University**

**Bengaluru**

**Summer-term**

 **SCHOOL OF ENGINEERING**

**SUMMER TERM END TERM EXAMINATION AUGUST 2024**

**Semester**:2023-24

**Course Code**: MEC1001

**Course Name**: Fundamentals of Automobile Engineering

**Program & Sem**: B.Tech & Summer term

**Date**: 05.08.2024

**Time**: 1:00PM-4:00PM

**Max Marks**: 100

**Weightage**: 50%

 **Instructions:**

1. *Read the all questions carefully and answer accordingly.*
2. *All questions are Compulsory*

**Part A [Memory Recall Questions]**

**Answer any FIVE Questions. Each question carries SIX marks. (5Qx 6M= 30M)**

1. What is automobile? Give the classification of automobile. (C.O.No.1) [Knowledge]

2. What is clutch? What are the functions of clutch? (C.O.No.2) [Knowledge]

3.What are the requirements of transmission system? (C.O.No.2) [Knowledge]

4. What are the advantages and disadvantages of cooling system? (C.O.No.3) [Knowledge]

5. List out the basic requirement of braking system used in automobile (C.O.No.3) [Knowledge]

6. With the suitable example list out different types of chassis. (C.O.No.4) [Knowledge]

7. What are the objective of suspension system used in automobile? (C.O.No.4) [Knowledge]

**Part B [Thought Provoking Questions]**

**Answer any FOUR Questions. Each question carries TEN marks. (4Qx10M=40M)**

8. Relation between piston and valves is controlled by setting a graphical representation of the opening and closing of the intake and exhaust valve of the engine. The opening and closing of the valves of the engine depend upon the movement of piston from TDC to BDC. Identify with graphical representation explain the valve time diagram of engine where in spark plug is used to ignite the fuel. (C.O.No.1) [Comprehension]

9. When an Automobile negotiates a turn, the distance travelled by outside wheels is greater than that travelled by inside wheels in the same time. Explain the device which will allow the wheels to revolve at different speed with suitable diagram. (C.O.No.2) [Comprehension]

10. With simple sketch explain the synchromesh gear box system used in transmission system.

 (C.O.No.2) [Comprehension]

11. A cooling system works by passing liquid continually through the passages in the engine block. Explain the cooling system with diagram where in the circulation of water occurs naturally due to density difference between hot and cooled water. (C.O.No.3) [Comprehension]

12. Differentiate between disc and drum brake system used in automobile and also mention the its applications. (C.O.No.3) [Comprehension]

13. With the simple sketch explain the working principle of double wishbone suspension system used in automobile (C.O.No.4) [Comprehension]

**Part C [Problem Solving Questions]**

**Answer any TWO Questions. Each question carries 15 marks. (2Qx15M=30M)**

14. IC engine is a heat engine where the combustion of the air-fuel mixture occurs inside the combustion chamber that produces high temperature and high gas pressure. This gas pressure pushes the piston over a distance and transforms the chemical energy into thermal energy which is used for performing the mechanical work. Mention the principle components of IC engine and explain the working principle of four stroke cycle engine where in fuel injection system is used.

(C.O.No.1) [Comprehension]

15. With the help of schematic diagram explain the breaking system where in hydraulic fluid is used for applying brakes to the wheel. (C.O.No.3) [Comprehension]

16.With the help of block diagram explain the suspension system where in air or pneumatic system used and list out the advantages over the metal spring suspension system.

(C.O.No.4) [Comprehension]