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**Presidency University**

**Bengaluru**

**SCHOOL OF ENGINEERING**

**Make-Up Examinations, July 2024**

**Semester**: II

**Course Code**: MEC 101

**Course Name**: Elements of Mechanical Engineering

**Program**: B. Tech

**Date**: 01 July 2024

**Time**: 9.30 am to 12.30 pm

**Max Marks**: 100

**Weightage**: 50%

**Instructions:**

1. *Read the all questions carefully and answer accordingly.*

**Part A [Memory Recall Questions]**

**Answer any FIVE Questions. Each question carries 2 marks. (5Qx2M=10M)**

1. Indicated power of a 4-stroke engine is equal to \_\_\_\_\_\_\_\_\_\_\_ [2M] (CO1, Knowledge Level)
2. The thermal efficiency of diesel engines is about \_\_\_\_\_\_\_\_\_\_\_ [2M] (CO1, Knowledge Level)
3. What is an internal combustion engine? [2M] (CO1, Knowledge Level)
4. What is the idling RPM of a motorcycle petrol engine? [2M] (CO1, Knowledge Level)
5. What was used as fuel during the early invention of IC engines? [2M] (CO1, Knowledge Level)
6. Otto cycle is used in which engine? [2M] (CO2, Knowledge Level)
7. Define Boiler. [2M] (CO1, Knowledge Level)

**Part B [Thought Provoking Questions]**

**Answer any FIVE the Questions. Each question carries 10 marks. (5Qx10M=50M)**

1. Differentiate between fire tube and water tube boilers with examples [10M] (CO3, Comprehension Level)
2. Write the advantages and disadvantages of vertical axis wind turbine? Also write the classification of wind turbine. [10M] (CO3, Comprehension Level)
3. Define Pressure. Discuss different types of pressures through simple line diagram.

. [10M] (CO3, Comprehension Level)

1. Explain working of a closed cycle gas turbine with a neat sketch. [10M] (CO3, Comprehension Level)
2. Mention any five differences between 4 stroke petrol & diesel engines

 [10M] (CO3, Comprehension Level)

1. Define hydraulic turbine & give the complete classification of hydraulic turbines

 [10M] (CO3, Comprehension Level)

1. What is air conditioning? Write down operations involved in cooling comfort. Give two reasons why ventilation is essential. [10M] (CO3, Comprehension Level)

**Part C [Problem Solving Questions]**

**Answer any TWO Questions. Each question carries 20 marks. (2Qx20M=40M)**

1. With a neat sketch explain the working of Vapour absorption system. Mention any three applications of refrigeration [20M] (CO4, Application Level)
2. With a neat sketch explain the working of Babcock & Wilcox Boiler. Mention its advantages & disadvantages [20M] (CO4, Application Level)
3. Explain working of 4-stroke diesel engine with a neat sketch and P-V diagram . [20M] (CO4: Application Level)