



B.TECH. DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Fourth Semester

COMMON TO FT / TXT

U18MET4007: Basics of Mechanical Engineering

COURSE OUTCOMES

- CO1:** Explain principles of thermodynamics, renewable energy and power plants.
CO2: Explain the working principle and combustion characteristics of IC Engines.
CO3: Explain the working principle of VCR & VAR systems.
CO4: Understand and explain the various manufacturing processes and power transmission.
CO5: Demonstrate basic manufacturing process.
CO6: Explain various types of power transmission.

Time: Three Hours

Maximum Marks: 100

**Answer all the Questions:-
 PART A (10 x 2 = 20 Marks)
 (Answer not more than 40 words)**

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|---|-----------------------|
| 1. Define intensive and extensive properties with examples. | CO1 [K ₃] |
| 2. Classify IC Engines. | CO2 [K ₂] |
| 3. State first law of thermodynamics. | CO2 [K ₂] |
| 4. Define Refrigeration. | CO3 [K ₃] |
| 5. State the use of Refrigerants in refrigeration. | CO3 [K ₃] |
| 6. Define drawing processes in manufacturing. | CO4 [K ₂] |
| 7. Define welding. | CO4 [K ₂] |
| 8. Differentiate between hot and cold working. | CO5 [K ₃] |
| 9. What do you mean by slip in the belt drive. | CO6 [K ₂] |
| 10. List out various types of power transmission devices. | CO6 [K ₃] |

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

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|-----|----|---|----|-----|-------------------|
| 11. | a) | List out different types of thermodynamic system based on the interaction. | 8 | CO1 | [K ₃] |
| | b) | Outline steam power plant with a neat sketch. | 8 | CO1 | [K ₃] |
| 12. | a) | Explain the working of four stroke petrol engine with neat sketch. | 10 | CO2 | [K ₃] |
| | b) | Differentiate between two stroke and four stroke engine. | 6 | CO2 | [K ₃] |
| 13. | | Explain with neat sketch vapour compression refrigeration system. | 16 | CO3 | [K ₄] |
| 14. | | Define Rolling and explain different types of rolling process with a neat sketch, also state pros and cons. | 16 | CO5 | [K ₃] |
| 15. | | Explain with neat sketch any one power transmission devices. also state pros and cons. | 16 | CO6 | [K ₃] |
| 16. | | Explain Nuclear Power plant with a neat sketch, also state pros and cons. | 16 | CO1 | [K ₄] |
