

Reg. No: 

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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY: PUTTUR**  
(AUTONOMOUS)

**B.Tech II Year II Semester Supplementary Examinations February-2022**

**MECHANICAL ENGINEERING**

(Common to CE & AGE)

Time: 3 hours

Max. Marks: 60

**PART-A**

(Answer all the Questions 5 x 2 = 10 Marks)

- |   |   |  |    |
|---|---|--|----|
| 1 | a | Draw the PV diagram of Carnot Cycle                              | 2M |
|   | b | What are the types of Hydraulic Turbines                         | 2M |
|   | c | Draw the line diagram of Vapour Compression Refrigeration System | 2M |
|   | d | What are the different types of Power Transmission devices       | 2M |
|   | e | Define Forging   | 2M |

**PART-B**

(Answer all Five Units 5 x 10 = 50 Marks)

**UNIT-I**

- |   |   |     |
|---|---|-----|
| 2 | Explain about Efficiency of Carnot Cycle with PV Diagram. | 10M |
|---|---|-----|

**OR**

- |   |   |     |
|---|---|-----|
| 3 | An engine working on the Otto Cycle is supplied with air at 0.1 MPa, 35 °C. The compression ratio is 8. Heat supplied is 2100 kJ/Kg. Calculate the maximum pressure and temperature of the cycle, the cycle efficiency, and the mean effective pressure ( For air, $C_p=1.005$ , $C_v=0.718$ and $R=0.287$ kJ/Kg K) | 10M |
|---|---|-----|

**UNIT-II**

- |   |   |  |    |
|---|---|--|----|
| 4 | a | Write the essential factors required for a good steam boiler.      | 5M |
|   | b | Explain the working of two-stroke petrol engine with line diagram. | 5M |

**OR**

- |   |   |   |    |
|---|---|---|----|
| 5 | a | Discuss on different types of fuels used in Industry Application. | 5M |
|   | b | Explain the working of MPFI engine with a neat sketch.            | 5M |

**UNIT-III**

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|---|---|-----|
| 6 | Explain briefly about Energy Efficiency Rating. | 10M |
|---|---|-----|

**OR**

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|---|---|-----|
| 7 | Discuss on working of window Air Conditioner with neat diagram. | 10M |
|---|---|-----|

**UNIT-IV**

- |   |   |  |    |
|---|---|--|----|
| 8 | a | Define Brakes and its Classification.    | 5M |
|   | b | Define Friction Clutches. Classify them. | 5M |

**OR**

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|---|---|-----|
| 9 | Explain in details about different types of Gear Trains with neat sketch. | 10M |
|---|---|-----|

**UNIT-V**

- |    |   |     |
|----|---|-----|
| 10 | Explain briefly about different types of Sheet Metal Cutting. | 10M |
|----|---|-----|

**OR**

- |    |   |                                  |    |
|----|---|----------------------------------|----|
| 11 | a | Explain about Powder Metallurgy. | 5M |
|    | b | What is mean by Brazing?         | 5M |

\*\*\*END\*\*\*