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

B.Tech II Year II Semester Regular Examinations October-2020
MECHANICAL ENGINEERING
(Common to CE & AGE)

Time: 3 hours

Max. Marks: 60

PART-A(Answer all the Questions **5 x 2 = 10** Marks)

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|----------|--|-----------|
| 1 | a Draw the PV diagram of Carnot Cycle. | 2M |
| | b What is the difference between Boiler & Steam Turbine? | 2M |
| | c What is the difference between Heat Engine & Heat Pump? | 2M |
| | d What is the difference between Chain & Belt Drive? | 2M |
| | e What is the purpose of Milling Machine? | 2M |

PART-B(Answer all Five Units **5 x 10 = 50** Marks)**UNIT-I**

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|----------|---|-----------|
| 2 | a Express the Vander wall Equation | 5M |
| | b Explain about Efficiency of Carnot Cycle with PV Diagram | 5M |

OR

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|----------|---|------------|
| 3 | An air standard dual cycle has a compression ratio of 16, and compression begins at 1 bar, 50°C. The maximum pressure is 70 bar. The heat transferred to air at constant pressure is equal to that at constant volume. Estimate | 10M |
| | i) The pressure and temperature at the cardinal points of cycle | |
| | ii) The cycle efficiency | |
| | iii) The mean effective pressure of the cycle | |
| | (For air, $C_p=1.005$, $C_v=0.718$ and $R=0.287$ kJ/Kg K) | |

UNIT-II

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| 4 | a What do you know about classification of Boilers & Discuss? | 5M |
| | b What are the merits and demerits of Gas turbine with I.C engines? | 5M |

OR

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| 5 | a Explain the working of MPFI engine with a neat sketch. | 5M |
| | b Explain the working of two-stroke petrol engine with line diagram. | 5M |

UNIT-III

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| 6 | a What is Coefficient of Performance | 3M |
| | b Explain the working of House Hold Refrigerator with line diagram | 7M |

OR

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| 7 | a Explain the working of split air conditioner. | 6M |
| | b Write the advantages and Disadvantages of Split air conditioner. | 4M |

UNIT-IV

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| 8 | a Define Engineering Materials | 2M |
| | b What are the different types of alloys? Explain briefly about any two of them | 8M |

OR

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| 9 | a Define briefly about Rope drives. | 4M |
| | b Explain in details about types Brakes and its applications. | 6M |

UNIT-V

- 10** **a** Briefly discuss about soldering. 5M
 b What is mean by welding? Classify them. 5M
- OR**
- 11** **a** Explain about Forging and their types. 5M
 b Discuss about Principle of Rolling. 5M

END