

Reg. No:

--	--	--	--	--	--	--	--	--	--

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

B.Tech II Year II Semester Supplementary Examinations March-2021

THERMODYNAMICS & HEAT ENGINES

(Agricultural Engineering)

Time: 3 hours

Max. Marks: 60

PART-A

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

- | | | | |
|---|---|---------------------------|----|
| 1 | a | Define State. | 2M |
| | b | Define Wet steam. | 2M |
| | c | Define Enthalpy. | 2M |
| | d | Define Flow process. | 2M |
| | e | Mention Boiler Mountings. | 2M |

PART-B

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

UNIT-I

- | | | | |
|---|---|--|----|
| 2 | a | Show that Heat and Work is a path function and not a property of the system. | 5M |
| | b | What is the Quasi static Process? What are its characteristics features? | 5M |

OR

- | | | | |
|---|---|--|----|
| 3 | a | Explain about Thermodynamic Equilibrium. | 5M |
| | b | Differentiate between cyclic and non cyclic process. | 5M |

UNIT-II

- | | | | |
|---|---|--|----|
| 4 | a | Define the First Law of thermodynamics. Prove that IE is the property of the system. | 5M |
| | b | Derive the Steady flow Energy equation for compressor. | 5M |

OR

- | | | | |
|---|---|---|----|
| 5 | a | State the second law of thermodynamics. | 5M |
| | b | Explain the Specific heat capacities (C_v & C_p). | 5M |

UNIT-III

- | | | | |
|---|---|--|----|
| 6 | a | What is Avogadro's Law? | 5M |
| | b | State the Daltons law of partial pressure. | 5M |

OR

- | | | | |
|---|---|--|----|
| 7 | a | Explain the difference between Isothermal and Adiabatic Process. | 5M |
| | b | What is the gas equation for ideal gas? | 5M |

UNIT-IV

- | | | | |
|---|---|--|----|
| 8 | a | Explain the limitation of Carnot cycle. | 4M |
| | b | Explain the P-V, P-T, T-S diagram of Pure substance. | 6M |

OR

- | | | | |
|---|---|--|----|
| 9 | a | Derive an Expression for thermal efficiency Carnot cycle draw PV&TS diagram. | 5M |
| | b | Derive an Expression for thermal efficiency Sterling cycle draw PV&TS diagram. | 5M |

UNIT-V

- | | | | |
|----|---|--|----|
| 10 | a | Explain drum less boiler with neat sketch. | 5M |
| | b | How are boilers classified? | 5M |

OR

- | | | | |
|----|---|---|----|
| 11 | a | Give the comparison between fire tube and water tube boilers. | 5M |
| | b | What are the silent feature of good boiler? | 5M |

END