

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

M.Tech. I Year II Semester Regular & Supplementary Examinations July-2025

STEAM ENGINEERING

(Thermal Engineering)

Time: 3 Hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

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|---|---|--|-----|----|----|
| 1 | a | How Boilers are classified? Explain. | CO1 | L2 | 6M |
| | b | How do you check the quality of feed water supplied to the Boiler. | CO1 | L3 | 6M |

OR

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|---|---|---|-----|----|----|
| 2 | a | Draw and identify various lines in Mollier Diagram. | CO1 | L2 | 6M |
| | b | Differentiate between Fire tube boiler and Water Tube Boiler. | CO1 | L3 | 6M |

UNIT-II

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|---|---|--|-----|----|----|
| 3 | a | Describe the importance of the Insulation for steam piping system. | CO2 | L2 | 6M |
| | b | List out the advantages of heat recovery system. | CO2 | L2 | 6M |

OR

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|---|---|--|-----|----|----|
| 4 | a | Mention the importance and types of furnace wall design. | CO2 | L2 | 6M |
| | b | State the objectives of refractory materials. | CO2 | L2 | 6M |

UNIT-III

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|---|---|--|-----|----|----|
| 5 | a | Draw the line diagram of steam generating facility and explain all the components. | CO3 | L2 | 6M |
| | b | Evaluate the benefits of condensate recovery system | CO3 | L3 | 6M |

OR

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|---|---|---|-----|----|----|
| 6 | a | What is the importance of steam leakage in steam distribution system. | CO3 | L2 | 6M |
| | b | Mention the remedial actions for eliminating the steam leakage. | CO3 | L3 | 6M |

UNIT-IV

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|---|---|---|-----|----|----|
| 7 | a | The following data relates to a coal fired boiler. Steam generated is 8 tons/hr: steam pressure and temperature are 10 kgf/cm ² and 1800C; Enthalpy of Steam (Dry & Saturated) at 10 kgf/cm ² is 665 Kcal/Kg Feed water temperature is 85 Kcal/kg; Quantity of coal Consumed is 1.6 tons/hr; Gross Calorific Value is 4000 Kcal/Kg. Find the efficiency of the boiler and the evaporation rate. | CO4 | L2 | 6M |
| | b | Discuss in detail about the Performance test codes of boilers. | CO4 | L3 | 6M |

OR

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|---|---|--|-----|----|----|
| 8 | a | Estimate the performance of the boiler in Direct and Indirect Methods. | CO4 | L2 | 6M |
| | b | Write a short notes on Proximate and Ultimate analysis of coal. | CO4 | L3 | 6M |

UNIT-V

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|---|---|--|-----|----|----|
| 9 | a | Process Instrumentation system is needed for controlling the Boiler. Justify. | CO5 | L2 | 6M |
| | b | Write a short notes on the importance of Control and Monitoring System of Boilers. | CO5 | L2 | 6M |

OR

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|----|---|---|-----|----|----|
| 10 | a | Describe the working of Bourdon tube pressure gauge with a neat sketch. | CO5 | L2 | 6M |
| | b | Name different type of temperature measurement Instruments used in boilers and explain them in brief. | CO5 | L2 | 6M |

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