

Reg. No:

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

**B.Tech I Year I Semester Supplementary Examinations November-2021**

**THERMAL AND FLUID ENGINEERING**

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 60

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

**UNIT-I**

- |   |   |                                                 |    |    |
|---|---|-------------------------------------------------|----|----|
| 1 | a | What are the components of thermal power plant? | L4 | 4M |
|   | b | What is coal handling system?                   | L1 | 4M |
|   | c | What is the function of cooling tower?          | L1 | 4M |

**OR**

- |   |   |                                                          |    |    |
|---|---|----------------------------------------------------------|----|----|
| 2 | a | Explain the term state, path, process and cycle          | L2 | 6M |
|   | b | State and explain quasi static process with neat diagram | L1 | 6M |

**UNIT-II**

- |   |   |                                                         |    |    |
|---|---|---------------------------------------------------------|----|----|
| 3 | a | Define Latent Heat, Sensible Heat and Dryness fraction. | L1 | 6M |
|   | b | Define Boiler. Classification of Boilers.               | L4 | 6M |

**OR**

- |   |   |                                             |    |    |
|---|---|---------------------------------------------|----|----|
| 4 | a | What is the function of Fusible plug?       | L1 | 4M |
|   | b | Explain water tube boiler with neat sketch. | L2 | 8M |

**UNIT-III**

- |   |   |                                                                                |    |    |
|---|---|--------------------------------------------------------------------------------|----|----|
| 5 | a | Write short notes on surface tension and capillarity.                          | L1 | 6M |
|   | b | Define Pressure. Explain pressuring measuring device any one with neat sketch. | L1 | 6M |

**OR**

- |   |   |                                                               |    |    |
|---|---|---------------------------------------------------------------|----|----|
| 6 | a | Explain U-tube and inverted U-tube manometer with neat sketch | L2 | 8M |
|   | b | Define density and specific gravity of fluid.                 | L1 | 4M |

**UNIT-IV**

- |   |   |                                                       |    |    |
|---|---|-------------------------------------------------------|----|----|
| 7 | a | Derive Bernouli's equation.                           | L4 | 6M |
|   | b | List out types of flow. Define any two with examples. | L1 | 6M |

**OR**

- |   |   |                                                                         |    |    |
|---|---|-------------------------------------------------------------------------|----|----|
| 8 | a | What is the function of venturimeter? Write down formula for discharge. | L4 | 4M |
|   | b | What are the major and minor losses in pipes? Define HGL.               | L2 | 8M |

**UNIT-V**

- |   |   |                                                                                  |    |    |
|---|---|----------------------------------------------------------------------------------|----|----|
| 9 | a | Write down the expression for force of jets on stationary plate with neat sketch | L4 | 6M |
|   | b | Explain the working of Pelton wheel with neat sketch.                            | L2 | 6M |

**OR**

- |    |   |                                                                                                                                                         |    |    |
|----|---|---------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|
| 10 | a | Find the force exerted by a jet of water of diameter 75 mm on a stationary flat plate, when the jet strikes the plate normally with velocity of 20 m/s. | L1 | 6M |
|    | b | Explain the working principle of Modern Francis Turbine.                                                                                                | L2 | 6M |

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