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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech I Year I Semester Supplementary Examinations November-2022

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 Explain different types of thermodynamic systems. L1 6M
b Describe in detail about Quasi Static Process with schematic diagram. L1 6M

OR

- 2 Explain the concept of pumped storage power plants with neat diagram. L1 12M

UNIT-II

- 3 a What is fusible plug? Draw the sketch and explain. L1 6M
b What is safety valve? Explain its purpose. L1 6M

OR

- 4 Explain the Cochran boiler with a neat sketch. L1 12M

UNIT-III

- 5 a Write a short note on Piezometer with neat sketch. L6 6M
b Define Atmospheric pressure, gauge pressure and absolute pressure. L1 6M

OR

- 6 a Derive an expression for surface tension inside the liquid droplet. L3 6M
b The surface tension of water in contact with air at 200°C is 0.0725 N/m. the pressure inside a droplet of water is to be 0.02N/cm² greater than the outside pressure. Calculate the diameter of droplet of water. L3 6M

UNIT-IV

- 7 Write a short note on Pipes in Series and Pipes in Parallel and derive expression for it. L6 12M

OR

- 8 Develop an expression for Discharge measurement by orifice meter. L6 12M

UNIT-V

- 9 Draw the neat sketch of Francis turbine and explain its working. L3 12M

OR

- 10 a Derive an expression for the hydraulic efficiency when a liquid jet strikes a single fixed curved vane. L3 6M
b A jet of 50 mm diameter delivers a stream of water at 20 m/s perpendicular to a plate that moves away from the jet 5 m/s. Find the force on the plate, work done and efficiency of jet. L3 6M

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