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

M.Tech I Year II Semester Regular Examinations November-2021

REFRIGERATION AND CRYOGENICS

(Thermal Engineering)

Time: 3 hours

Max. Marks: 60

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

UNIT-I

- 1 a A Carnot refrigerator using R12 as working fluid operates between 40°C and -30°C.e L2 6M
Determine the work of compression and cooling effect produced by the cycle
- b Discuss the effects of evaporator and condenser temperatures on Carnot COP. L3 6M

OR

- 2 Explain actual VCRS systems. L2 12M

UNIT-II

- 3 a Give important properties that must be considered while selecting lubricating oil in L1 6M
refrigerant compressors.
- b Explain the method of lubrication to compressors. L4 6M

OR

- 4 Describe the different types of screw compressor with neat sketches. L3 12M

UNIT-III

- 5 a Give the equation for condenser heat rejection ratio (HRR). L2 6M
b Discuss about mean temperature difference in a condenser. L3 6M

OR

- 6 Derive the overall heat transfer coefficient for design of a condenser. L3 12M

UNIT-IV

- 7 Discuss about powder insulation. L2 12M

OR

- 8 Discuss the process of Gas separation system. L3 12M

UNIT-V

- 9 Explain Linde system for air liquification. L2 12M

OR

- 10 a Describe the modified Claude cycle for liquification system. L1 6M
b Write the short note on combination of Isenthalpic and Isentropic expansion for L1 6M
liquification.

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