

CBCS SCHEME

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18ME642

Sixth Semester B.E. Degree Examination, July/August 2022 Refrigeration and Air Conditioning

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain with the help of P.V. and T.S, diagram working of reverse Carnot cycle. (10 Marks)
- b. Explain with neat sketch, the working of Bell-Coleman cycle refrigeration system. (10 Marks)

OR

- 2 a. Explain with neat sketch air evaporative cooling system. Mention the T-S diagram. (10 Marks)
- b. Explain with neat sketch working of Boot strap air cooling system. (10 Marks)

Module-2

- 3 a. Show the process of vapour compression refrigeration cycle on T.S. and P.h diagram for dry saturated vapour after compression and explain it. (10 Marks)
- b. With a neat sketch, explain two stage (compound) vapour compression system with liquid inter cooler. (10 Marks)

OR

- 4 a. Explain with neat sketch, the three stage vapour compression system with flash inter cooler. (10 Marks)
- b. With the help of T.S diagram, explain the working of actual vapour compression refrigeration system. (10 Marks)

Module-3

- 5 a. Prepare a neat layout of simple vapour absorption refrigeration system and explain each part. (10 Marks)
- b. Explain with neat sketch Electrolux vapour absorption refrigeration system. (10 Marks)

OR

- 6 a. With a neat sketch explain the working of Lithium-Bromide water vapour absorption system. (12 Marks)
- b. Briefly explain about steam jet and thermoelectric refrigeration system. (08 Marks)

Module-4

- 7 a. Discuss the desirable properties of ideal refrigerant. (10 Marks)
- b. Write a short note on R12 and R22 refrigerant. (06 Marks)
- c. Write the advantages of vapour absorption refrigeration system over vapour compression refrigeration system. (04 Marks)

OR

- 8 a. What are the thermodynamic properties of good refrigerant, and explain it in short. (08 Marks)
b. Write a note on zeotropic and Azeotropic mixture of refrigerant. (08 Marks)
c. Write a note on designation of refrigerant and give one example. (04 Marks)

Module-5

- 9 a. With a neat diagram explain Summer and Winter air conditioning systems. (12 Marks)
b. Mention the factors affecting human comfort and write a note on comfort chart. (08 Marks)

OR

- 10 a. Describe the different methods of air conditioning duct design. (12 Marks)
b. Write a note on pilot operated Solenoid valve. (04 Marks)
c. Write a note on Transport air conditioning system. (04 Marks)

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