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BOARD DIPLOMA EXAMINATION, (C–14)

SEPTEMBER/OCTOBER - 2020

DME—SIXTH SEMESTER EXAMINATION

REFRIGERATION AND AIR-CONDITIONING

Time : 3 hours] [*Total Marks* : 80

PART—A 3×10=30

Instructions : (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Define refrigeration effect and coefficient of performance.

2. State the purpose of flash chamber and accumulator in the VCR system.

3. State the use of analyzer and rectifier in a vapour absorption refrigeration system.

4. State the advantage and limitations of capillary tube.

5. What are the advantages of secondary refrigerants?

6. State the function of fans and blowers in air-conditioning system.

7. Define dew point temperature and relative humidity.

8. What is a psychrometric chart? State its uses.

9. Define sensible heat factor and by-pass factor.

10. What are the symptoms of gas shortage in air-conditioning system?

PART—B

10×5=50

Instructions **:** (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

11. Explain the method of steam jet refrigeration with the help of a neat sketch.

12. A simple vapour compression refrigeration plant produces 6 tons of refrigeration. The enthalpy values at inlet to compressor, at exit from the compressor and at exit from the condenser are 181·5, 215·5 and 72·5 kJ/kg respectively. Estimate—

(a) the refrigerant flow rate;

(b) the COP;

(c) the power required to drive the compressor;

(d) the rate of heat rejection to the condenser.

13. Explain the working of simple vapour absorption refrigeration system with a line diagram.

14. Explain the working of thermostatic expansion value with the help of a neat sketch.

15. Explain the working of domestic refrigerator with the help of a neat sketch.

16. Discuss viscous filters used in air-conditioning system.

17. Explain various components involved in cooling load calculation.

18. Explain the working of window air-conditioning with a neat sketch.

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