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BOARD DIPLOMA EXAMINATION, (C–16)

NOVEMBER—2020

DME—FIFTH 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 *(a)* Refrigeration and *(b)* COP. 1½+1½

2. State the advantages of dry compression over wet compression.

3. State the purpose of flash chamber and accumulator in the vapour compression system.

4. State any three desirable properties of refrigerant-absorbent pair.

5. What is the function of expansion device in refrigerating system?

6. What is the function of drier in refrigeration system? List out different types of driers.

7. Define refrigerant. List out any four common refrigerants.

8. Define the term air-conditioning.

9. Why filter is used in air-conditioning system? List out different types of filters.

10. What are the advantages of forced draft cooling tower over natural draft cooling tower?

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. *(a)* Draw P-V and T-S diagrams of reversed Carnot refrigeration cycle. 5

(b) Write any five differences between open air system and closed air system. 5

12. Explain the working of vapour compression refrigeration system with aid of flow diagram, T-S and P-h diagrams.

13. Explain the working principle of electrolux refrigerating system with a neat sketch.

14. *(a)* Explain the working of hermetically sealed reciprocating compressor with a neat sketch.

(b) Write any four differences between air cooled condensers and water cooled condensers.

15. Describe the working of domestic refrigerator with a neat sketch.

16. Describe any two types of duct systems employed to supply conditioned air to outlets.

17. *(a)* Define the following terms : 6

(i) Wet bulb temperature

(ii) Dry bulb temperature

(iii) Relative humidity

(b) Show the cooling and dehumidification process on psychometric chart and explain in detail. 4

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

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