



C16-M-503

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BOARD DIPLOMA EXAMINATION, (C-16)
JANUARY/FEBRUARY—2022
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 the terms (a) Refrigeration and (b) COP.
2. State the advantages of vapour compression system.
3. What is subcooling?
4. Differentiate between two fluid and three fluid refrigeration systems.
5. What is the function of expansion device in refrigerating system?
6. What is a capillary tube? State its function.
7. What is the function of thermostat in domestic refrigerator?
8. Define air conditioning.
9. List the characteristics of a good air distribution system.
10. State the advantages of central air conditioned system.

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PART—B

10×5=50

- Instructions :** (1) Answer *any five* questions.
(2) Each question carries **ten** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

- 11.** An ice plant produced 10 tons of ice per day at 0 °C using water at room temperature of 20 °C. Estimate the power rating of the compressor if the overall mechanical efficiency is 88 % and COP of the plant is 3. Take specific heat of water is 4.2 kJ/kg and latent heat of water freezing is 336 kJ/kg.
- 12.** Explain the working of vapour compression system with the help of a flow diagram.
- 13.** Explain the working principle of Electrolux refrigerating system with a neat sketch.
- 14.** (a) Explain the working of automatic expansion valve with a neat sketch.
(b) Explain sealed type drier with a neat sketch.
- 15.** Draw a neat sketch of ice plant layout and explain how ice is produced.
- 16.** Describe any two types of duct systems employed to supply air conditioned air to outlets.
- 17.** In a laboratory test a sling psychrometer recorded dry bulb temperature as 30 °C and wet bulb temperature as 25 °C. Calculate (a) vapour pressure, (b) relative humidity, (c) specific humidity and (d) dew point temperature.
- 18.** Explain the winter air conditioning system with the help of neat sketch.

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