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C09-M-606A

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BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—2018

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. Compare vapour compression refrigeration system with vapour absorption refrigeration system.
2. What is wet compression? State the disadvantages of wet compression in VCR system.
3. What are desirable properties of refrigeration absorbent pair?
4. What are the applications of refrigeration?
5. List out various methods of refrigeration.

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6. Differentiate between water-cooled and air-cooled condensers.
7. What are the differences between primary and secondary refrigerants?
8. Write how the evaporators are classified.
9. Define the following :
 - (a) Wet bulb temperature
 - (b) Relative humidity
10. What are the applications of air conditioning?

PART—B

10×5=50

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

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

(3) The answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Describe air refrigeration system. Explain the Bell-Coleman cycle with the help of a schematic diagram *PV* and *Ts* diagrams.
12. Explain the working of a simple vapour compression system with help of flow diagram the *T-s* and *P-h* diagrams.
13. Explain the working of Electrolux refrigerating system with a neat sketch.
14. Explain the working of bottle type water cooler with a neat sketch.
15. Write the important properties of NH_3 , $R 11$, $R 12$ and $R 13$ refrigerants. Also mention the main applications of each refrigerating.

16. (a) Explain the working of centrifugal fan with a neat sketch. What are different types of blade used in centrifugal fan?
- (b) Explain the viscous filters with a neat sketch.
17. (a) Describe adiabatic chemical dehumidification process with a neat sketch. Show the process on the psychrometric chart.
- (b) Find dew point temperature, relative humidity and specific humidity of moist air at dry bulb temp of 25°C and wet bulb temperature of 18°C. Also find out the mass density of the air at the above condition in kg/m³.
18. Explain the year round air conditioning system with a neat sketch.

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