C14-M-**602**

4758

BOARD DIPLOMA EXAMINATION, (C-14)

MARCH /APRIL-2019

DME - SIXTH SEMESTER EXAMINATION

REFRIGERATION & AIR CONDITIONING

Time: 3 Hours Max.Marks:80

PART-A

10X3=30M

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

1) A carnot cycle operates between tempretature limits 47^0C and -10^0C determine the COP when operating as a refrigerator and heat pump

2) Draw a neat sketch of vapour compression refrigeration system

3) Write any three combinations of Refrigerant and absorbent pairs in VAR system.

4) Write any three differences between air cooled condenser and water cooled condenser.

5) List out different types of evaporators.

6) Write the applications of air conditioning.

7) Define a) Wet bulb temperature
   b) Dry bulb temperature

8) What is sensible heating and show it on psychrometric chart.

9) What is By pass Factor. Write down BPF formula for heating and cooling coils.

10) Write different leak detection methods of Feron and ammonia.

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PART-B

5X10=50M

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

11) Explain Bell-Coleman cycle with neat sketch and draw P-V and T-S diagrams.

12) The ammonia refrigeration plant works between temperature limits -15^{0}C and 30^{0}C. The working fluid ammonia is assumed to be dry saturated at the end of compression. Calculate
a) Refrigerating effect b) COP

Temperature	Enthalpy KJ/kg		Entropy KJ/kg K	
^{0}C	liquid	vapour	liquid	vapour
-15	112.17	1424.919	0.4564	5.5423
30	322.57	1468.09	1.2017	4.9809

13) a) write any five differences between vapour compression refrigeration system and Vapour Absorption refrigeration system?
b) In a vapour absorption refrigerator the heat supplied at 120^{0}C and thetemperture in the refrigerator to be maintained at -5^{0}c. Find the maximum COP if the refrigerator load is 20 tons and actual COP is 70% of the max COP. Find the heat actually supplied. Take the tempreture of atmosphere as 30^{0}C.

14) Describe different propoerties of refrigerants.

15) Explain working of ice plant with neat sketch.

16) (a)Explain the different types of duct systems. 6M
(b)Expalin the working of centrifugal fan with neat sketch. 4M

17) What is the importance of mixing of air streams in air conditioning and write the properties of mixture.

18) Explain summer air conditioning with neat sketch.

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