B.TECH SEM – VI (2007 COURSE) (MECHANICAL ENGG.) : SUMMER - 2018

SUBJECT : REFRIGERATION & AIR – CONDITIONING

Day : **Friday** | **S-2018-2729** | Time : **02.30 PM TO 05.30 PM**

Date : **01/06/2018** | Max. Marks : 80

N.B.:

1) **Q.No.1** and **Q.No.5** are **COMPULSORY**. Out of the remaining attempt **ANY TWO** questions from each section.
2) Answers to both the sections should be written in **SEPARATE** answer books.
3) Use of non-programmable **CALCULATOR** is allowed.
4) Figures to the right indicate **FULL** marks.
5) Assume suitable data if necessary.

SECTION – I

Q.1 **a)** Explain with neat sketch simple vapor absorption system. **[05]**

b) Explain with neat sketch actual vapor compression cycle. **[05]**

c) Explain steam jet refrigeration system with sketch. **[04]**

Q.2 Explain effect of suction pressure and discharge pressure on performance of simple vapor compression cycle. Also explain the effect of super heating and undercooling on the performance of vapor compression cycle. **[13]**

Q.3 Explain with neat sketch Lithium Bromide vapor absorption system. Also give the classification of refrigerants. **[13]**

Q.4 Explain with neat sketch 2-stage refrigeration system with intercooler and individual expansion valve. Also explain cascade system. **[13]**

SECTION – II

Q.5 Write short notes on: **[14]**

a) Thermostatic expansion device
b) Capillary tube
c) Ice plant
d) All round air conditioning system

Q.6 Calculate degree of saturation, relative humidity, enthalpy and absolute humidity of air with DBT = 32^0C and WBT = 18^0C. Discuss adiabatic mixing of two air streams. **[13]**

Q.7 Give the classification of evaporators and explain any one with neat sketch. Also give the classification of condensers. **[13]**

Q.8 Enlist different applications of refrigeration in food preservation. Also explain the different losses in the ducts. **[13]**

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