S. B. Roll. No……

REFRIGERATION AND AIR CONDITIONING
5th Exam/Mech./6853/Jun'2022
(For 2018 Batch Onwards)

Duration: 3Hrs. **M.Marks:75**

SECTION-A

Q1. Fill in the blanks. **15x1=15**

a. The COP of a vapour compression plant in comparison to vapour absorption plant is_____
b. The fluids used in Electrolux refrigerator are_____
c. The centrifugal compressors are generally used for refrigerants that have_____
d. During dehumidification process, the relative humidity_____
e. The wet bulb depression is zero when relative humidity is_____
f. The C.O.P of a refrigeration cycle with increase in evaporator temperature, keeping condenser temperature constant, will_____
g. The process, generally used in winter air-conditioning to warm and humidity the air, is called_____
h. The pressure at the inlet of a refrigerant compressor is called_____
i. In aircraft, air refrigeration Cycle is used because of_____
j. Formation of frost on evaporator in refrigerator _____the performance.
k. The curved lines on a psychrometric chart indicates_____
l. In a lithium bromide absorption refrigeration system _____is used as a refrigerant.
m. In a saturated air-water vapour mixture, the Dry bulb, wet bulb and dew point temperature are___
n. The relative coefficient of performance is equal to_____
o. The refrigerant R-717 stands for_____

SECTION-B

Q2. Attempt any six questions. **6x5=30**

i. Define the following
   a) Refrigerating Effect b) Cop c) Dry bulb Temperature d) Relative Humidity
ii. Explain automobile air conditioning.
iii. Give the advantages and disadvantages of air refrigeration system.
iv. Describe auto defrosting.
v. Discuss the Effects of Sub-cooling and Superheating.
vi. Represent Vapour compression cycle on T-S diagram when:
   a. vapours are dry saturated at the end of compression
   b. vapours are superheated at the end of compression
vii. Explain Psychrometric Chart.
viii. Describe split type air-conditioning.

SECTION-C

Q3. Attempt any three questions. **3x10=30**

a. Describe the Bell –Coleman air cycle. Obtain an expression for COP of the cycle.
b. How do we classify the Refrigerants? Explain with examples.
c. Explain with the help of neat diagram LI-Br vapour absorption cycle.
d. List various types of Expansion Devices. Explain any two of them with neat diagrams.
e. A Carnot refrigerator system has working temperature of -300C and 400C. What is the maximum C.O.P possible? If the actual C.O.P is 75% of maximum, calculate the actual refrigeration effect produced per kWh and capacity of system.