

5th Sem. / Mech. Engg. (2014)

Subject : Refrigeration and Air Conditioning

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Time : 3 Hrs.

M.M. : 100

SECTION-A

Note: Very Short Answer type questions. Attempt any 15 parts. (15x2=30)

- Q.1
- a) Define refrigeration effect.
 - b) Define C.O.P of a refrigeration system.
 - c) What is effect of superheating of vapour on C.O.P in vapour compression refrigerated system?
 - d) Define Enthalpy
 - e) What is use of accumulator in vapour compression refrigerated system?
 - f) State volumetric efficiency in vapour compression refrigerated system?
 - g) What are hydrocarbons?
 - h) Define refrigerant. HSBTEonline.com
 - i) Give two advantages of solar
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- h) Name the operation in which vapour is superheated at the end of compression.
- i) What is the effect decrease in suction pressure on refrigerating effect and COP. HSBTEonline.com
- j) Name the part of a refrigeration system in which heat is rejected by the refrigerant.
- k) Name the basic type of evaporators.
- l) State the applications of capillary tube. Give two practical applications also.
- m) What is a psychrometer?
- n) What do you understand by the term humidification.
- o) Define sensible heat factor.
- p) What happens to specific humidity during sensible cooling. (increases or decreases or remains constant).
- q) Name the common absorbent refrigerant combinations used in solar power refrigeration system.
- r) Define mass flow rate.

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SECTION-B

Note: Short answer type questions. Attempt any ten parts 10x4=40

- Q.2
- i) Explain differentiate between COP and efficiency.

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- iv) Write short note on dry compression.
- v) Draw and explain pv diagram of simple vapour compression refrigeration cycle.
- vi) What are the effects of change in suction pressure on performance of vapour compression system? HSBTEonline.com
- vii) Define primary and secondary refrigerants. Give their examples also.
- viii) What is R-134a. What are its main properties?
- ix) Write short note on reciprocating compressor.
- x) Explain the working of shell and coil condenser.
- xi) What is spray pond. Explain it with diagram. HSBTEonline.com
- xii) Name the different types of expansion valves. Explain any one of them.
- xiii) What is importance of psychrometry?
- xiv) Write a short note on split type air conditioning.
- xv) What are the main functions of air conditioning?

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SECTION-C

Note: Long answer type questions. Attempt any three questions. HSBTEonline.com $3 \times 10 = 30$

- Q.3 Write short note on wet compression.
 - i) Wet compression.
 - ii) Superheated compression
- Q.4 Explain in detail the domestic Electrolux refrigeration system with diagram.
- Q.5 Explain in detail the working of low-side float valve and high-side float valve.
- Q.6 What are psychrometric processes? Explain
 - a) Sensible cooling
 - b) Cooling with adiabatic humidification
- Q.7 Explain window type air conditioning system with the help of neat sketch. Give its advantages.

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