Program: BE Mechanical Engineering

Curriculum Scheme: Revised 2012

Examination: Fourth Year Semester VIII

Course Code: MEC803 and Course Name: RAC

Time: 1hour Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

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| Q1.  | The alignment circle is marked on the psychrometric chart at |
| Option A: | 20°C DBT and 50% RH |
| Option B: | 26°C DBT and 50% RH |
| Option C: | 20°C DBT and 60% RH |
| Option D:  | 26°C DBT and 60% RH |
|  |  |
| Q2. | The centrifugal compressors are generally used for refrigerants that require |
| Option A: | Small displacements and low condensing pressures |
| Option B: | Large displacements and high condensing pressures |
| Option C: | Small displacements and high condensing pressures |
| Option D: | Large displacements and low condensing pressure |
|  |  |
| Q3. | The by-pass factor of a cooling coil decreases with |
| Option A: | Decrease in fin spacing and increases in number of rows |
| Option B: | Increase in fin spacing and increases in number of rows |
| Option C: | Increase in fin spacing and decrease in number of rows |
| Option D: | Decrease in fin spacing and decrease in number of rows |
|  |  |
| Q4. | In ideal vapour absorption system, generator temperature =395K, Condenser temperature =300K and evaporator temperature is 268K, what is it’s ideal COP? |
| Option A: | 2.65 |
| Option B: | 2.246 |
| Option C: | 2.23 |
| Option D: | 3.526 |
|  |  |
| Q5. | During adiabatic saturation process on unsaturated air \_\_\_\_\_\_ remains constant |
| Option A: | Relative humidity |
| Option B: | Dew point temperature |
| Option C: | Dry bulb temperature |
| Option D:  | Wet bulb temperature |
|  |  |
| Q6. | In an ideal vapor compression refrigerator cycle, the specific enthalpy of refrigerant at the following states is given as, at Inlet of condenser = 283 KJ/Kg, at Exit of condenser = 116 KJ/Kg,Exit of evaporator = 232 KJ/Kg,The C.O.P. of this cycle is |
| Option A: | 2.27 |
| Option B: | 2.75 |
| Option C: | 3.27 |
| Option D:  | 3.75 |
|  |  |
| Q7.  | Ice of portable water can crack if frozen at a temperature lower than |
| Option A: | -12oC |
| Option B: | -15oC |
| Option C: | -20oC |
| Option D:  | -25oC |
|  |  |
| Q8.  | In designing ducts, the equal friction method is ideal |
| Option A: | Only for return ducts |
| Option B: | When the system is balanced |
| Option C: | When the system is not balanced |
| Option D:  | For rectangular ducts only |
|  |  |
| Q9. | The most suitable refrigerant of a commercial ice plant....... |
| Option A: | Brine |
| Option B: | NH3 |
| Option C: | Freon |
| Option D:  | Air |
|  |  |
| Q10.  | The boiling point of ammonia is |
| Option A: |  -10.50C |
| Option B: |  -30.50C |
| Option C: |  -33.30C |
| Option D:  |  -77.60C |
|  |  |
| Q11.  | In winter air conditioning, the air is |
| Option A: | Cooled and humidified |
| Option B: | Cooled and dehumidified |
| Option C: | Heated and humidified |
| Option D:  | Heated and dehumidified |
|  |  |
| Q12. | Absorption system normally uses following refrigerant.... |
| Option A: | Ammonia |
| Option B: | SO2 |
| Option C: | Freon-11 |
| Option D: | Freon-22 |
|  |  |
| Q13. | For rectangular ducts, the aspect ratio is equal to |
| Option A: |  sum of longer and shorter sides |
| Option B: |  sum of longer and shorter sides |
| Option C: |  product of longer and shorter sides |
| Option D:  | ratio of longer and shorter sides |
|  |  |
| Q14.  | The science of study of the thermodynamic properties of a mixture of dry air and water vapour in the atmosphere is called |
| Option A: |  Refrigeration |
| Option B: | Psychrometry |
| Option C: | Air conditioning |
| Option D:  | evaporation |
|  |  |
| Q15. | The evaporation process is a |
| Option A: |  constant volume reversible process |
| Option B: |  constant pressure reversible process |
| Option C: |  adiabatic throttling process |
| Option D:  |  reversible adiabatic process |
|  |  |
| Q16.  | Air refrigeration cycle is used in....... |
| Option A: | Commercial refrigerators |
| Option B: | Domestic refrigerators |
| Option C: | Air-conditioning |
| Option D:  | Gas liquefaction |
|  |  |
| Q17. | The milk is stored at a temperature of |
| Option A: | -5oC |
| Option B: | 4oC |
| Option C: | 10oC |
| Option D: | 12oC |
|  |  |
| Q18. | Refrigerant with the highest critical pressure is |
| Option A: | R11 |
| Option B: | R12 |
| Option C: | R22 |
| Option D:  | Ammonia |
|  |  |
| Q19.  | The relative coefficient of performance ( C.O.P.)is equal to....... |
| Option A: | Theoritical C.O.P./Actual C.O.P. |
| Option B: | Actual C.O.P./Theoritical C.O.P. |
| Option C: | Theoritical C.O.P. x Actual C.O.P. |
| Option D:  | Theoritical C.O.P. x 5Actual C.O.P. |
|  |  |
| Q20. | During a refrigeration cycle, heat is rejected by the refrigerant in a |
| Option A: | Compressor |
| Option B: | Condenser |
| Option C: | Evaporator |
| Option D: | Expansion valve |
|  |  |
| Q21. | A vapour absorption system |
| Option A: | Gives noisy operation |
| Option B: | Gives quiet operation |
| Option C: | Requires little power consumption |
| Option D:  | Cools below zero degree Celsius |
|  |  |
| Q22.  | The atmospheric air at dry bulb temperature of 32°C enters a cooling coil maintained at ADP 10°C. The air leaves the coil at 15°C. The efficiency of the coil is |
| Option A: | 0.376 |
| Option B: | 0.4 |
| Option C: | 0.25 |
| Option D:  | 0.75 |
|  |  |
| Q23. | The method used for high-velocity and long duct runs is |
| Option A: |  velocity reduction method |
| Option B: |  equal friction method |
| Option C: |  static regain method |
| Option D:  | dynamic regain method |
|  |  |
| Q24.  |  Rating of a domestic refrigerator is of the order of....... |
| Option A: | 0.1 ton |
| Option B: | 5 ton |
| Option C: | 10 ton |
| Option D:  | 40 ton |
|  |  |
| Q25. | The method, in which the size of the duct is designed to give equal frictional pressure drop per meter length in all ducts is |
| Option A: |  velocity reduction method |
| Option B: |  equal friction method |
| Option C: |  static regain method |
| Option D:  | dynamic regain method |