Program: BE Mechanical Engineering

Curriculum Scheme: Revised 2016

Examination: THIRD Year Semester VI

Course Code: MEC604 and Course Name: Refrigeration and Air Conditioning

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.  | In a split air conditioner, ODU (Outdoor Unit) has |
| Option A: | compressor, condenser and expansion device |
| Option B: | compressor and condenser |
| Option C: | Evaporator |
| Option D:  | expansion device and evaporator |
|  |  |
| Q2. | 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: | None of these |
|  |  |
| Q3. | The static regain method of designing the ducts as compared to equal friction method  |
| Option A: | Increases balancing problems |
| Option B: | Increases the cost of sheet metal for the duct |
| Option C: | Decreases the cost of sheet metal for the duct |
| Option D: | Decreases balancing problems |
|  |  |
| Q4. | When the outside air is introduced for ventilation purposes, there is a  |
| Option A: | Sensible heat gain |
| Option B: | Latent heat gain |
| Option C: | Sensible heat gain as well as latent heat gain |
| Option D: | Unpredictable  |
|  |  |
| Q5. | 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 |
|  |  |
| Q6. | The human body feels comfortable when the heat stored in the body is |
| Option A: | Positive |
| Option B: | Negative |
| Option C: | Zero |
| Option D:  | Unpredictable |
|  |  |
| Q7.  | The superheated vapour region, in a pressure enthalpy chart, is represented by the space |
| Option A: | To the left of saturated liquid line |
| Option B: | To the right of saturated liquid line |
| Option C: | Between the saturated liquid line and saturated vapour line |
| Option D:  | To the top of saturated liquid line |
|  |  |
| Q8.  | The index which correlates the combined effects of air temperature, relative humidity and air velocity on the human body is known as |
| Option A: | Main radiant temperature |
| Option B: | Effective temperature |
| Option C: | Dew point temperature |
| Option D:  | Dry bulb temperature |
|  |  |
| Q9. | The commonly used refrigerant in ice plant is |
| Option A: | NH3 |
| Option B: | CO2 |
| Option C: | R-12 |
| Option D:  | R-22 |
|  |  |
| Q10.  | The temperature maintained in the brine tank of ice plant is  |
| Option A: | -10oC |
| Option B: | -15oC |
| Option C: | -18oC |
| Option D:  | -20oC |
|  |  |
| Q11.  | The dry ice is produced by  |
| Option A: | Drying the ice |
| Option B: | Keeping ice in an insulated chamber |
| Option C: | By solidifying liquid CO2 |
| Option D:  | By solidifying liquid NO2 |
|  |  |
| Q12.  | A vapour absorption refrigerator uses\_\_\_\_\_\_\_\_\_\_\_ as a refrigerant |
| Option A: | Water |
| Option B: | Ammonia |
| Option C: | Freon |
| Option D: | Aqua- ammonia |
|  |  |
| Q13. | During sensible cooling |
| Option A: | Relative humidity remains constant |
| Option B: | Wet bulb temperature increases |
| Option C: | Specific humidity increases |
| Option D:  | Partial pressure of vapour remains constant |
|  |  |
| Q14.  | The curved lines on a psychrometric chart indicates |
| Option A: | Dry bulb temperature |
| Option B: | Wet bulb temperature |
| Option C: | Specific humidity |
| Option D:  | Relative humidity |
|  |  |
| Q15. | The minimum temperature to which moist air can be cooled under ideal condition in a spray washer is |
| Option A: | Dew point temperature of inlet air |
| Option B: | Wet bulb temperature of inlet air |
| Option C: | Water inlet temperature |
| Option D:  | Water outlet temperature |
|  |  |
| Q16.  | The ratio of sensible heat to total heat is known as |
| Option A: | Specific humidity |
| Option B: | Relative humidity |
| Option C: | Apparatus dew point |
| Option D:  | Sensible heat factor |
|  |  |
| Q17. | In a spray washing system, if the temperature of water is higher than the dry bulb temperature of entering air, then the air is |
| Option A: | Heated and dehumidified |
| Option B: | Heated and humidified |
| Option C: | Cooled and humidified |
| Option D: | Cooled and dehumidified |
|  |  |
| Q18. | The efficiency of Carnot heat engine is 80%. The C.O.P of a refrigerator operating on the reversed Carnot cycle is equal to |
| Option A: | 0.25 |
| Option B: | 0.40 |
| Option C: | 0.60 |
| Option D:  | 0.80 |
|  |  |
| Q19.  | The C.O.P for a reversed Carnot refrigerator is 4. The ratio of its highest temperature to the lowest temperature will be |
| Option A: | 1 |
| Option B: | 1.25 |
| Option C: | 1.75 |
| Option D:  | 2 |
|  |  |
| Q20. | Air refrigeration cycle is used in  |
| Option A: | Commercial refrigerators |
| Option B: | Domestic refrigerator |
| Option C: | Air conditioning |
| Option D: | Gas liquefaction |
|  |  |
| Q21. | An ordinary passenger aircraft requires a cooling system of capacity  |
| Option A: | 2TR |
| Option B: | 4TR |
| Option C: | 8TR |
| Option D:  | 10TR |
|  |  |
| Q22.  | A heat pump working on a reversed Carnot cycle has C.O.P. of 5. It works as a refrigerator taking 1 KW of work input. The refrigerating effect will be |
| Option A: | 1 KW |
| Option B: | 2 KW |
| Option C: | 3 KW |
| Option D:  | 4 KW |
|  |  |
| Q23. | In Boot strap air evaporative cooling system, the evaporator is provided |
| Option A: | Between the combustion chamber and the first heat exchanger |
| Option B: | Between the first heat exchanger and the secondary compressor |
| Option C: | Between the secondary compressor and the second heat exchanger |
| Option D:  | Between the second heat exchanger and the cooling turbine |
|  |  |
| Q24.  | The by-pass factor for a cooling coil |
| Option A: | Increases with increase in velocity of air passing through it |
| Option B: | Decreases with increase in velocity of air passing through it |
| Option C: | Remain unchanged with increase in velocity of air passing through it |
| Option D:  | May increases or decrease with increase in velocity of air passing through it depending upon the condition of air entering |
|  |  |
| Q25. | In a domestic refrigerator, a capillary tube controls the flow of refrigerant from the |
| Option A: | Expansion valve to the evaporator |
| Option B: | Evaporator to the thermostat |
| Option C: | Condenser to the expansion valve |
| Option D:  | Condenser to the evaporator  |