

Program: BE Mechanical Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester - VI

Course Code: MEC604

Course Name: Refrigeration and Air Conditioning

Time: 1 hour

Max. Marks: 50

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

Q1.	Which of the following parameter is made as basis of comparing different type of air refrigeration system?
Option A:	Mass flow rate of air
Option B:	Refrigerating capacity of Air cycle in kW
Option C:	Mach number
Option D:	Dry air rated temperature
Q2.	In aircraft, air refrigeration cycle is used because of
Option A:	Low weight per tonne of refrigeration
Option B:	High heat transfer rate
Option C:	Low temperature at high altitude
Option D:	Higher coefficient of performance
Q3.	A Carnot cycle refrigerator operates between 250°K and 300°K. What is the value of COP?
Option A:	10
Option B:	20
Option C:	30
Option D:	5
Q4.	The reduced ambient air-cooling system has
Option A:	One cooling turbine and one heat exchanger
Option B:	One cooling turbine and two heat exchangers
Option C:	Two cooling turbine and one heat exchanger
Option D:	Two cooling turbine and two heat exchangers
Q5.	The highest temperature during the cycle, in a vapour compression refrigeration system, occurs after
Option A:	Compression
Option B:	Condensation
Option C:	Expansion
Option D:	Evaporation
Q6.	Which of the following refrigerant has the lowest boiling point ?
Option A:	Ammonia

Option B:	Carbon dioxide
Option C:	Sulphur dioxide
Option D:	R-12
Q7.	The thermostatic expansion valve is also called
Option A:	Constant pressure valve
Option B:	Constant temperature valve
Option C:	Constant superheat valve
Option D:	Constant flow valve
Q8.	A better indicator for cooling tower performance is
Option A:	Wet bulb temperature
Option B:	Dry bulb temperature
Option C:	Range
Option D:	Approach
Q9.	Which of the following is an azeotrope refrigerant?
Option A:	R-11
Option B:	R-40
Option C:	R-114
Option D:	R-502
Q10.	Heat is rejected by the refrigerant, during vapor compression refrigeration cycle in
Option A:	Condenser
Option B:	Evaporator
Option C:	Throttle Valve
Option D:	Compressor
Q11.	In aqua-ammonia and Li-Br water absorption refrigeration systems, the refrigerant is respectively
Option A:	Ammonia and water
Option B:	Water and water
Option C:	Ammonia and Li-Br
Option D:	Water and Li-Br
Q12.	In Electrolux Refrigerator, hydrogen gas circulates between
Option A:	Absorber and heat exchanger
Option B:	Evaporator and Condenser
Option C:	Absorber and Evaporator
Option D:	Rectifier and Condenser
Q13.	A thermoelectric refrigeration system requires :
Option A:	A high voltage AC input
Option B:	A low voltage AC input
Option C:	A high voltage DC input
Option D:	A low voltage DC input

Q14.	What is the perfect condition for dehumidification of air?
Option A:	air is heated above its dew point temperature
Option B:	air is cooled up to its dew point temperature
Option C:	air is heated below its dew point temperature
Option D:	air is cooled below its dew point temperature
Q15.	The mass of water vapour present in _____ is called absolute humidity.
Option A:	1 m ³ of water
Option B:	1 m ³ of dry air
Option C:	1 kg of wet air
Option D:	1 kg of dry air
Q16.	On psychrometric chart, wet bulb temperature lines are
Option A:	horizontal with uniformly spaced
Option B:	horizontal with non-uniformly spaced
Option C:	inclined with uniformly spaced
Option D:	inclined with non-uniformly spaced
Q17.	Sensible Heat gain in an air conditioning system is Proportional to
Option A:	Temperature difference between WBT of air and temperature of a surface/body
Option B:	DBT of air
Option C:	Temperature difference between DBT of air and temperature of a surface/body
Option D:	WBT of air
Q18.	Energy Conservation in the air-conditioning of a building can be achieved by
Option A:	Maximizing Infiltration load
Option B:	Minimization of solar heat gain
Option C:	Maximizing Ventilation Load
Option D:	Energy Conservation is not possible
Q19.	The Effective Room sensible Heat (ERSH) where , RSH is Room Sensible Heat , OASH is Outside air sensible heat and BPF is Bypass Factor is given
Option A:	$ERSH = RSH + BPF \div OASH$
Option B:	$ERSH = RSH - BPF \times OASH$
Option C:	$ERSH = RSH - BPF \div OASH$
Option D:	$ERSH = RSH + BPF \times OASH$
Q20.	The surface temperature of a cooling coil t_s which is below the dew point temperature of the supply air is known as
Option A:	Triple point

Option B:	Apparatus dew point or ADP
Option C:	Critical point
Option D:	Boiling point
Q21.	Grand Sensible heat factor (G.S.H.F) is given by where , where T.S.H. is Total Sensible heat, and T.L.H. is Total Latent heat is
Option A:	$GSHF = \frac{T.S.H.}{T.S.H. + T.L.H}$
Option B:	$GSHF = \frac{T.S.H. + T.L.H.}{T.S.H.}$
Option C:	$GSHF = \frac{T.S.H. - T.L.H.}{T.S.H.}$
Option D:	$GSHF = \frac{T.S.H.}{T.S.H. - T.L.H}$
Q22.	Two air streams stream 1 with mass m_{a1} and specific enthalpy h_1 and stream 2 with mass m_{a2} and specific enthalpy h_2 are mixed together adiabatically at constant pressure to form as new stream 3. The specific enthalpy of stream 3 h_3 is given by
Option A:	$h_3 = \frac{m_{a1} \cdot h_1 + m_{a2} \cdot h_2}{m_{a1} + m_{a2}}$
Option B:	$h_3 = \frac{m_{a1} \cdot h_2 + m_{a2} \cdot h_1}{m_{a1} + m_{a2}}$
Option C:	$h_3 = \frac{m_{a1} + m_{a2}}{m_{a1} + m_{a2}}$
Option D:	$h_3 = \frac{h_1 + h_2}{m_{a1} + m_{a2}}$
Q23.	_____ is a process in which water is frozen followed by its removal from the sample initially by sublimation (primary drying) and then by sublimation (desorption)
Option A:	Lyophilisation
Option B:	Freezing
Option C:	freeze drying
Option D:	Cooling
Q24.	_____ will affect the production of textile and paper
Option A:	Change in humidity and pressure
Option B:	Change in air velocity and pressure
Option C:	Change in air velocity and temperature
Option D:	Change in humidity and temperature

Q25.	Seawater air conditioning (SWAC) uses the _____ from the deep ocean (and in some cases a deep lake) to cool buildings.
Option A:	cold water
Option B:	hot water
Option C:	Ammonia
Option D:	Liquid Nitrogen