Psychrometry for AC Industry

Name: _____

Mob: _____

R&AC ACADEMY
AWAKENS THE ENGINEER IN YOU

PRACTICE QUESTIONS

Objective type questions

1 Sum of partial pressures of dry air and water vapor in moist air is called _____

2 In psychrometry, the mass of _____ is considered as constant, in moist air.

3 Specific humidity is the ratio of masses of _____ to _____ in moist air.

4 In terms of partial pressures, Humidity ratio = _____

5 Relative humidity of dry air is ____ % and of saturated air is _____ %

6 On T-s diagram, the condition of water vapor, in unsaturated air is _____ zone.

7 The difference between DBT and WBT is known as _____

8 Value of humid specific heat of moist air (with units) is _____

9 For _____ air, DBT, WBT and DPT are equal

10 In a simple humidification or dehumidification process, _____ remains constant and _____ changes

11 In sensible cooling process, the RH of moist air _____ and W is _____

12 To achieve cooling & dehumidification, the cooling coil surface temperature must be _____ than the _____ temperature of entering air.

13 The temperature of cooling coil surface in cooling & dehumidification process is known as _____ of the coil.

14 Supply of outside fresh air into conditioned space is called _____

15 Leakage of outside air into conditioned space, through door openings is called _____

16 RSHF = _____

17 Total Sensible Heat (TSH) = _____

18 Total Latent Heat (TLH) = _____

19 Grant Total Heat (GTH) = _____

20 GSHF = _____

21 Enthalpy of moist air (with units) at DBT 't' and specific Humidity 'W' is _____

22 For a place at 45 C and 75% RH, _____ is the psychrometric process needed to achieve comfort condition of 25 C DBT & 50% RH.

23 The saturation temperature corresponding to partial pressure of water vapor in moist air (PV) is _____

24 In psychrometry, an adiabatic process happens at constant _____

25 The saturation pressure corresponding to DBT is _____

26 _____ can be treated as natural ventilation of air conditioned space.

27 In a summer A/C system with ventilation air and with BPF = 0, the coil ADP and Room ADP are _____.

28 ERLH = _____

29 ERSH = _____

30 ESHF = _____

31 GSHF line intersects the saturation curve on psychrometric chart at _____

32 RSHF line intersects the saturation curve on psychrometric chart at _____

33 ESHF line intersects the saturation curve on psychrometric chart at _____

34 For summer A/C system with ventilation and BPF=X, the load on the room will be more because of _____

35 For summer A/C system with 100% recirculation air, the supply air temperature into the room will be _____ as the BPF increases.

Short answer Questions:

1 For a moist air at 30 C DBT and 60% RH, find W, h, DPT

2 Find partial pressure of water vapor (PV) for moist air with DBT 32C and WBT 26C, using Carrier's equation?

3 Using psychrometric chart, find DBT, DPT, RH & WBT for moist air with h= 46KJ/Kg d.a. and W= 10 g w.v./Kg d.a.

4 Find the density of moist air at 760mm Hg pressure and at a DBT 30 C and DPT of 18C?

5 Derive the specific humidity and enthalpy of mixture, when two streams of air are mixed adiabatically

6 Using adiabatic saturation processor for atmospheric air, derive for specific humidity of atmos air? Assume that the air is saturated at the exit of the processor and the air temperature is measured using thermometers.

7 100 Cu. m/min of air at 8 C and 80% RH is heated sensibly to 25 C. Find heat added to the air?

8 Moist air at 30 C and 70% is cooled & dehumidified to 20 C & 60% RH. Find the sensible and latent heat removed per kg of dry air and water removed per kg of dry air.

9 Moist air at a barometric pressure of 101.3Kpa and at 30 C enters the adiabatic saturation processor and leaves completely saturated at 20C. Find the W and RH of entering air?

10 With sensible & latent heat loads for room as RSH & RLH and for the ventilation air as OASH & OALH, derive for RSHF, TSH, TLH, GSHF?