

Code No: C9102

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M.Tech I Semester Examinations, March/April 2011

AIR CONDITIONING - I

(HEATING VENTILATION AND AIR CONDITIONING)

Time: 3hours

Max. Marks: 60

Answer any five questions

All questions carry equal marks

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- 1.a) What are the different types of psy chrometers are used? Describe with neat sketches any two types.
- b) 5 grams of water vapour per kg of atmospheric air is removed and temperature of air after removing the water vapour becomes 25 °C DBT. Find the followings:
 i) Relative Humidity
 ii) Dew point temperature.
 Assume condition of atmospheric air at 35 °C and 60% RH and pressure is 1.013 bar. [12]
2. Atmospheric air at 35 °C and 60% RH is conditioned to 22 °C DBT and 55% RH. This is done by first by cooling and de-humidifying and their by heating if the quantity of air flow is 60 cu.m per minute, find the following:
 i) Mass of water drained
 ii) Capacity of cooling coil
 iii) Capacity of heating coil
 Take $P_t = 1.033$ bar. [12]
- 3.a) What is sensible heat ratio? Explain this and show it on Psychrometric chart.
 b) What is evaporative condenser? Explain this with the help of neat diagram. [12]
- 4.a) Describe with a neat sketch the working of central A/C system.
 b) Sketch and explain the working of Room Air conditioner. [12]
- 5.a) What do you understand by the term cooling coils? Describe with a neat sketch the working of any one type.
 b) Sketch and explain the working of de-humidifying Air-washer. [12]
- 6.a) What are the requirements of comfort-Air conditioning and explain?
 b) What are indoor parameters in comfort Air conditioning and explain? [12]
- 7.a) Discuss the effect of heat on work performance in detail.
 b) Explain effective temperature with examples. [12]
8. Write short notes on with sketch.
 a) By-pass factor
 b) Air conditioning control systems
 c) Room thermostat. [12]
