

GUJARAT UNIVERSITY
B.E. SEM VIII (MECHANICAL)
M-805/3 AIR CONDITIONING ENGINEERING (E.P. II)
QUESTION BANK

1	Discuss in detail about various types of room loads to be consider for air-conditioning
2	Discuss in detail about ventilation requirements and use of BIS standard
3	Short note on comfort chart
4	List down the Psychometric Processes and explain cooling and dehumidification process in brief.
5	Define effective temperature. Discuss in detail about factors affecting effective temperature
6	Site survey and information require to be collected by the survey for load analysis in air-conditioning.
7	Discuss in detail about Short note on Flywheel effect of building material
8	Write short note on Air washer
9	The following information is available in connection with air conditioning of a store. Outside design condition : 41 °C DBT , 25 °C WBT Inside design condition : 25 o C DBT , 50 % RH Room sensible heat gain = 167.5 kW Room latent heat gain = 41.8 kW Sensible heat from outside air = 57.9 kW Air off the coil condition is = 90 % RH With help of psychometric chart calculate RSHF, Temperature of air leaving the coil and capacity of the unit.
10	Explain construction and working of induced draught cooling tower
11	Discuss in detail about Fan laws
12	The following data is available for a shopping mall. Outside condition : 43 °C DBT and 22 % RH Inside design condition : 26 °C DBT and 50 % RH Occupancy : 250 People 20 tube lights of : 5000 Watts Air change /hour = 2 Room dimension : 40 m x 20 m x 4m height Calculate load due to outside air, Occupants and electric lights.
13	Write a short note on selection criteria of air filters. Describe any one type of filter
14	Discuss in detail about principles of zoning in load analysis
15	A departmental store has the following data RSH = 45 kW, RLH = 3 kW, Room design condition 21 °C DBT, 65 % RH, Outside design condition 35 °C DBT, 24 °C WBT . Ventilation air through conditioner is 108 m ³ /min .Coil bypass factor = 0.05. 10 % of recirculated ih with dehumidified air after coil and rest before. Calculate: Total loads and Supply air temperature.
16	Classify the different types of duct. Explain in detail about economic factors influencing duct layout

17	Explain in detail about step by step procedure for duct design through equal friction method
18	Explain in detail about dynamic losses and its determination
19	Explain in detail about construction and working of the Unitary air-conditioning systems
20	Explain in detail about construction and working of the central air-conditioning systems
21	Explain in detail about construction and working of the fan coil unit (FCU) with and without VFC drive
22	Explain in detail about construction and working of the VAV air-conditioning systems
23	Explain in detail about difference between FCU and AHU
24	Write a short note on window air conditioner
25	Explain in detail about fan performance curves and their importance
26	Explain in detail about selection of fan
27	Explain in detail about basic idea of clean rooms
28	Explain in detail about hydraulic separation type humidifiers
29	Explain in detail about cell type humidifiers
30	Explain in detail about refrigerated dehumidifier and its applications.
31	Discuss in detail about various terminology used for cooling tower
32	Write a short note on Winter Air Conditioning Equipments
33	Discuss in detail about Sound insulation methods of noise reduction and acoustic insulation.
34	Discuss in detail about Functions of various Air Conditioning controls
35	Write a short note on DDC controllers
36	Discuss in detail about different air conditioning applications
37	Discuss in detail about testing of fan as per IS/AMCA
38	A fan delivers $600 \text{ m}^3 / \text{min}$ against 370 Pa SP with an outlet velocity of $600 \text{ m} / \text{min}$ and a static efficiency of 75% . Calculate Total heat, Air power, Brake power and mechanical efficiency.
39	Explain with neat sketch face and by pass control of Air-conditioning systems.
40	A departmental store has the following data RSH = 116.3 kW , RLH = 34.9 kW , Room design condition $26 \text{ }^\circ\text{C}$ DBT, 55% RH, Outside design condition $35 \text{ }^\circ\text{C}$ DBT, $29 \text{ }^\circ\text{C}$ WBT . Ventilation air through conditioner is $120 \text{ m}^3 / \text{min}$.Coil bypass factor = 0.2 . Calculate Air “on ” the coil temperature and coil apparatus dew point temperature.