



SARASWATI Education Society's
SARASWATI Institute of Technology

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Kharghar, Navi Mumbai - 410 210.

Mechanical Department

Name of Programme: - ME

Name of Course: - Refrigeration & Air Conditioning (SEM-VI 2017-18)

Course Outcome. – C605.1 To understand and developed the basic concept of refrigeration, working of air refrigeration cycles, vapour compression and absorption system, global warming and ozone depletion.

Assignment –I

1. What is refrigeration? Give its necessity & application.
2. Explain what is one ton of refrigeration.
3. Explain steam jet refrigeration.
4. Explain the working of vortex tube and give its applications.
5. Explain pulse tube refrigeration.
6. Give the classification of refrigerants in detail.
7. Explain the concept of Green House Effect & Global Warming.
8. Explain what is ozone depletion and ODP?
9. Write a short note on Eco-friendly refrigerants.
10. Explain the cooling system used for aircrafts.

Last Date Of submission: 01/01/2018

Course coordinator:- Mrs.Soma Karmokar (TYME-A) & Mrs.Geetanjali Thakur(TYME-B)



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Assignment –II

1. Give the construction and working of vapor compression cycle with P-H & T-S diagram.
2. What is subcooling? Explain with P-H & T-S diagram.
3. What is superheating? Explain with P-H & T-S diagram.
4. What is the need of multistaging in vapor compression cycle?
5. What is the effect of variation of suction pressure and discharge pressure in VCC?
6. Draw and explain the Li-Br refrigeration system.
7. Draw and explain the Electrolux refrigeration system.
8. State the difference between VCC and VAC.

Last Date Of submission: 12/01/2018

Course coordinator:- Mrs.Soma Karmokar (TYME-A) & Mrs.Geetanjali Thakur(TYME-B)



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Course Outcome. – C6O5.2 To learn and summarize the construction and working of refrigeration system equipments.

Assignment –III

1. Compare air cooled condensers with water cooled condensers
2. State reasons for suitability of capillary tube as an expansion device for domestic refrigerator
3. Explain working of flooded type evaporator with neat sketch
4. Classify the condensers used in refrigeration system.
5. State the function of evaporator and explain any one type of evaporator.
6. Explain dry expansion type of Chiller with neat sketch.
7. Explain the working of a capillary tube and state its advantages.
8. Explain working of 'Thermostatic Expansion Valve' with a neat sketch.
9. Draw neat sketch of practical vapour absorption refrigeration system.
10. Explain the principle of operation of evaporative condenser with neat sketch.

Last Date Of submission: 19/01/2018

Course coordinator:- Mrs.Soma Karmokar (TYME-A) & Mrs.Geetanjali Thakur(TYME-B)



Mechanical Department

Name of Programme: - ME

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Course Outcome. – C6O5.3 Apply the knowledge of psychrometry to various psychometric processes.

Assignment –IV

1. Air at 27°C DBT and 65% RH is cooled and dehumidified to 17°C DBT and 40% RH by performing no. of operation on it. Plot the process on Psychrometry chart and find out all properties of conditioned air.
2. In winter air-conditioning system, 100 m³ of air per minute at 15° C DBT and 80% relative humidity is heated until its DBT is 22 °C with constant specific humidity. Find heat added to the air per minute
(Use Psychometric Chart)
3. A surrounding air having DBT 38 °C. Plot the process on psychrometry chart°C and WBT 24 °C air having DBT 26 and find out following properties of conditioned air : (1) RH (2) Specific humidity (3) Enthalpy (4) Specific volume (5) By-pass factor of cooling coil (6) Apparatus dew point temperature
4. With the help of psychrometric chart find properties of air at 24 ° C 40 % Relative humidity.
(i) Dew point temperature (ii) Wet bulb temperature (iii) SP volume of air (iv) Enthalpy of air (v) SP humidity of air Draw psychrometric chart showing all above properties
5. Explain in brief revolving wick type humidifier with neat schematic sketch.
6. Sketch comfort chart and show on it comfort zone.

Last Date Of submission: 31/01/2018

Course coordinator:- Mrs.Soma Karmokar (TYME-A) & Mrs.Geetanjali Thakur(TYME-B)



Mechanical Department

Name of Programme: - ME

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Course Outcome. – C6O5.4 To understand the comfort conditions and formulate cooling and heating load of a system.

Assignment –V

1. State major controlling factors affecting human comfort.
2. State any four components of cooling load which are responsible for only sensible heat gain, for a large restaurant
3. Classify the ducts used in air distribution system of air conditioning
4. Draw a neat sketch of closed perimeter duct system. Where is it preferred?
5. Enlist any four types of insulating materials used in refrigerations and air-conditioning with one example of each type.
6. Explain the following losses in ducts used for air-conditioning : (i) Loss due to enlargement (ii) Loss due to sudden contraction (iii) Surface frictional loss
7. Define the term effective temperature and explain its significance in the design of air-conditioning system.
8. Draw diagram of grills and registers used in air distribution system
9. Explain losses in ducts.
10. What are different types of heat loads to be taken into account to calculate the heat load of computer lab of your institute?
11. What is sensible and latent heat gain ? List the sources of sensible and latent heat gain in a restaurant.
12. Explain Air-conditioning system for Hot and Dry weather with neat sketch. Represent it on psychrometric chart.
13. List the three duct systems (duct layout) and describe closed perimeter duct system. Draw the relevant sketch for the same.
14. Enlist different types of fans used in air-conditioning system. Explain any one with a sketch.

Last Date Of submission: 16/02/2018

Course coordinator:- Mrs.Soma Karmokar (TYME-A) & Mrs.Geetanjali Thakur(TYME-B)



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Course Outcome. – C6O5.5 To classify the air conditioning system as per the given application and to study about the various air distribution systems.

Assignment –VI

1. Explain automobile air-conditioning system.
2. Explain working of 'year round air-conditioning'
3. Differentiate between 'Central' and 'Unitary' air-conditioning systems.
4. State various industrial and commercial application of air conditioning
5. Name the refrigerant used for (i) Air conditioner (ii) Domestic refrigerator (iii) Ice plant (iv) Water cooler
6. Enlist any four Industrial application of air-conditioning.

Last Date Of submission: 26/02/2018

Course coordinator:- Mrs.Soma Karmokar (TYME-A) & Mrs.Geetanjali Thakur(TYME-B)