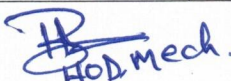


2023-2024

Discipline: <u>MECHANICAL</u>	Semester :5th	Name of the Teaching Faculty: <u>ER. LITU BEHERA</u> <u>Lecturer Mechanical</u>
Subject: REFRIGERATION AND AIR CONDITIONING	No. of days/perweek class allotted: 4	Semester From date: 01/08/2023 To date: No of weeks: 15
Week	Class Day	Theory Topics:
1st	1st	AIR REFRIGERATION CYCLE. 1.1 Definition of refrigeration and unit of refrigeration.
	2nd	1.2 Definition of COP, Refrigerating effect (R.E)
	3rd	1.3 Principle of working of open and closed air system of refrigeration.
	4th	1.3.1 Calculation of COP of Bell-Coleman cycle and numerical on it.
2nd	1st	SIMPLE VAPOUR COMPRESSION REFRIGERATION SYSTEM 2.1 schematic diagram of simple vapors compression refrigeration system'
	2nd	2.2 Types 2.2.1 Cycle with dry saturated vapors after compression. 2.2.2 Cycle with wet vapors after compression. 2
	3rd	.2.3 Cycle with superheated vapors after compression. 2.2.4 Cycle with superheated vapors before compression. 2.2.5 Cycle with sub cooling of refrigerant
	4th	2.2.6 Representation of above cycle on temperature entropy and pressure enthalpy diagram 2.2.7 Numerical on above (determination of COP, mass flow)
3rd	1st	VAPOUR ABSORPTION REFRIGERATION SYSTEM 3.1 Simple vapor absorption refrigeration system
	2nd	3.2 Practical vapor absorption refrigeration system
	3rd	3.3 COP of an ideal vapor absorption refrigeration system 3.4. Numerical on COP
	4th	Revision of Chapter-3
4th	1st	Previous year question solutions
	2nd	REFRIGERATION EQUIPMENTS 4.1 REFRIGERANT COMPRESSORS 4.1.1 Principle of working and constructional details of reciprocating and rotary compressors
	3rd	4.1.2 Centrifugal compressor only theory 4.1.3 Important terms. 4.1.4 Hermetically and semi hermetically sealed compressor.
	4th	4.2 CONDENSERS 4.2.1 Principle of working and constructional details of air cooled and water cooled condenser
5th	1st	4.2.2 Heat rejection ratio. 4.2.3 Cooling tower and spray pond. 4.3 EVAPORATORS 1.6.1 Principle of working and constructional details of an evaporator.
	2nd	1.6.2 Types of evaporator. 1.6.3 Bare tube coil evaporator, finned evaporator, shell and tube evaporator.


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3 rd	Revision of Chapter-4
4 th	Previous year question solutions

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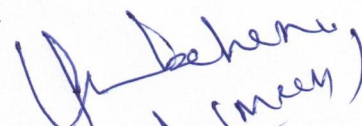
6 th	1 st	5.1 EXPANSION VALVES 5.1.1 Capillary tube
	2 nd	5.1.2 Automatic expansion valve
	3 rd	5.1.3 Thermostatic expansion valve 5.2 REFRIGERANTS
	4 th	5.2.1 Classification of refrigerants
7 th	1 st	5.2.2 Desirable properties of an ideal refrigerant.
	2 nd	5.2.3 Designation of refrigerant.
	3 rd	5.2.4 Thermodynamic Properties of Refrigerants.
	4 th	5.2.5 Chemical properties of refrigerants.
8 th	1 st	5.2.6 commonly used refrigerants, R-11, R-12, R-22, R-134a, R-717
	2 nd	5.2.7 Substitute for CFC
	3 rd	5.3 Applications of refrigeration 5.3.1 cold storage
	4 th	5.3.2 dairy refrigeration
9 th	1 st	5.3.3 ice plant
	2 nd	5.3.4 water cooler
	3 rd	5.3.5 frost free refrigerator
	4 th	Revision of Chapter-5
10 th	1 st	Previous year question solutions
	2 nd	PSYCHOMETRICS & COMFORT AIR CONDITIONING SYSTEMS 6.1 Psychrometric terms
	3 rd	6.2 Adiabatic saturation of air by evaporation of water
	4 th	6.3 Psychrometric chart and uses.

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11 th	1 st	6.4 Psychometric processes
	2 nd	6.4.1 Sensible heating and Cooling
	3 rd	6.4.2 Cooling and Dehumidification
	4 th	6.4.3 Heating and Humidification
12 th	1 st	6.4.4 Adiabatic cooling with humidification
	2 nd	6.4.5 Total heating of a cooling process
	3 rd	6.4.6 SHF, BPF,
	4 th	6.4.7 Adiabatic mixing
13 th	1 st	6.4.8 Problems on above.
	2 nd	6.5 Effective temperature and Comfort chart
	3 rd	Revision of Chapter-6
	4 th	Previous year question solutions
14 th	1 st	AIR CONDITIONING SYSTEMS 7.1 Factors affecting comfort air conditioning. .
	2 nd	7.2 Equipment used in an air-conditioning.
	3 rd	7.3 Classification of air-conditioning system
	4 th	7.4 Winter Air Conditioning System
15 th	1 st	7.5 Summer air-conditioning system.
	2 nd	7.6 Numerical on above
	3 rd	Revision of Chapter-7
	4 th	Previous year question solutions


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