

Discipline: Mechanical engineering	Semester : 5 th Semester	Name of the Teaching faculty: Smt. C R Meher(Lect.)
Subject : REFRIGERATION AND AIR CONDITIONING	No. of Days/Week Class Allotted: 60	No of weeks :18
Week	Class Day	Theory Topics
1 st	1 st	Air refrigeration cycle.
	2 nd	Definition of refrigeration and unit of refrigeration
	3 rd	Definition of COP, Refrigerating effect (R.E)
	4 th	Principle of working of open and closed air system of refrigeration
2 nd	1 st	Calculation of COP of Bell-Coleman cycle and numerical on it.
	2 nd	Simple vapour compression refrigeration system
	3 rd	schematic diagram of simple vapors compression refrigeration system' 2.2 Types
	4 th	Cycle with dry saturated vapors after compression
3 rd	1 st	Cycle with wet vapors after compression.
	2 nd	Cycle with superheated vapors after compression
	3 rd	Cycle with superheated vapors before compression.
	4 th	Cycle with sub cooling of refrigerant
4 th	1 st	Representation of above cycle on temperature entropy and pressure enthalpy diagram
	2 nd	Numerical on above (determination of COP, mass flow)
	3 rd	Vapour absorption refrigeration system
	4 th	Simple vapor absorption refrigeration system
5 th	1 st	Practical vapor absorption refrigeration system
	2 nd	COP of an ideal vapor absorption refrigeration system
	3 rd	Numerical on COP
	4 th	Refrigeration equipments
6 th	1 st	Refrigerant compressors
	2 nd	Principle of working and constructional details of reciprocating and rotary compressors.
	3 rd	Centrifugal compressor only theory
	4 th	Important terms compressor
7 th	1 st	Hermetically and semi hermetically sealed compressor.
	2 nd	Condensers Principle of working and constructional details of air cooled and water cooled condenser
	3 rd	Heat rejection ratio.
	4 th	Cooling tower and spray pond.
8 th	1 st	Evaporators Principle of working and constructional details of an evaporator.

	2 nd	Types of evaporator
	3 rd	Bare tube coil evaporator, finned evaporator, shell and tube evaporator
	4 th	Refrigerant flow controls, refrigerants & application of refrigerants
	9 th	1 st
	2 nd	Automatic expansion valve
	3 rd	Thermostatic expansion valve
	4 th	Refrigerants , Classification of refrigerants
	10 th	1 st
	2 nd	Thermodynamic Properties of Refrigerants.
	3 rd	Chemical properties of refrigerants.
	4 th	commonly used refrigerants, R-11, R-12, R-22, R-134a, R-717
	11 th	1 st
	2 nd	Applications of refrigeration
	3 rd	cold storage 5.3.2 dairy refrigeration
	4 th	ice plant 5.3.4 water cooler 5.3.5 frost free refrigerator
	12 th	1 st
	2 nd	Psychometric terms
	3 rd	Adiabatic saturation of air by evaporation of water 6.3 Psychometric chart and uses.
	4 th	Psychometric processes 6.4.1 Sensible heating and Cooling
	13 th	1 st
	2 nd	Adiabatic cooling with humidification 6.4.5 Total heating of a cooling process
	3 rd	SHF, BPF, 6.4.7 Adiabatic mixing
	4 th	Problems on above.
	14 th	1 st
	2 nd	Air conditioning systems
	3 rd	Factors affecting comfort air conditioning
	4 th	Equipment used in an air-conditioning
	15 th	1 st
	2 nd	Winter Air Conditioning System
	3 rd	Summer air-conditioning system.
	4 th	Numerical on AC
	16 th	1 st
	2 nd	Revision of chapter 2
	3 rd	Revision of chapter 3
	4 th	Revision of chapter 4
	17 th	1 st
	2 nd	Revision of chapter 6
	3 rd	Revision of chapter 7

	4 th	Discussion of probable Question and Answer of chapter 1and 2
18 th	1 st	Discussion of probable Question and Answer of chapter 3 and 4
	2 nd	Discussion of probable Question and Answer of chapter 5
	3 rd	Discussion of probable Question and Answer of chapter 6
	4 th	Discussion of probable Question and Answer of chapter 7