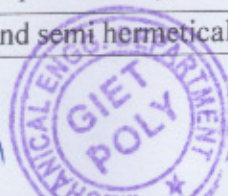
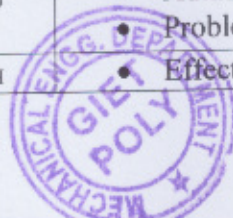


Discipline : MECHANICAL ENGG	Semester : 5th	Name of the Teaching Faculty: PRAVAT KUMAR SWAIN
Subject: R&AC(TH-5)	No. of days/per week class allotted: 04	Semester From date: 01.07.2024 To Date: 08.11.2024 No. of Weeks: 15
Week	Class Day	Theory Topics
1 ST	1 ST	1. AIR REFRIGERATION CYCLE. • Definition of refrigeration and unit of refrigeration.
	2 ND	• Definition of COP, Refrigerating effect (R.E)
	3 RD	• Principle of working of open and closed air system of refrigeration
	4 TH	• Calculation of COP of Bell-Coleman cycle and numerical on it
2 ND	1 ST	• Calculation of COP of Bell-Coleman cycle and numerical on it
	2 ND	2. SIMPLE VAPOUR COMPRESSION REFRIGERATION SYSTEM • schematic diagram of simple vapors compression refrigeration system
	3 RD	• Types • Cycle with dry saturated vapors after compression.
	4 TH	• Cycle with wet vapors after compression.
3 RD	1 ST	• Cycle with superheated vapors after compression
	2 ND	• Cycle with superheated vapors before compression.
	3 RD	• Cycle with sub cooling of refrigerant
	4 TH	• Representation of above cycle on temperature entropy and pressure enthalpy diagram
4 TH	1 ST	• Numerical on above (determination of COP, mass flow)
	2 ND	• Numerical on above (determination of COP, mass flow)
	3 RD	• Discussion of probable question
	4 TH	3. VAPOUR ABSORPTION REFRIGERATION SYSTEM • 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	• Numerical on COP.
6 TH	1 ST	• Numerical on COP.
	2 ND	• CLASS TEST
	3 RD	4. REFRIGERATION EQUIPMENTS REFRIGERANT COMPRESSORS • Principle of working and constructional details of reciprocating and rotary compressors
	4 TH	• Centrifugal compressor only theory Important terms
7 TH	1 ST	• Hermetically and semi hermetically sealed compressor.

Prav
29/6/24



	2 ND	CONDENSERS <ul style="list-style-type: none"> Principle of working and constructional details of air cooled and water cooled condenser
	3 RD	<ul style="list-style-type: none"> Heat rejection ratio. Cooling tower and spray pond.
	4 TH	EVAPORATORS <ul style="list-style-type: none"> Principle of working and constructional details of an evaporator.
	1 ST	<ul style="list-style-type: none"> Types of evaporator.
8 TH	2 ND	<ul style="list-style-type: none"> Bare tube coil evaporator, finned evaporator, shell and tube evaporator.
	3 RD	5. REFRIGERANT FLOW CONTROLS, REFRIGERANTS & APPLICATION OF REFRIGERANTS <ul style="list-style-type: none"> Expansion valves Capillary tube Automatic expansion valve Thermostatic expansion valve
	4 TH	REFRIGERANTS <ul style="list-style-type: none"> Classification of refrigerants
	1 ST	<ul style="list-style-type: none"> Desirable properties of an ideal refrigerant. Designation of refrigerant.
9 TH	2 ND	<ul style="list-style-type: none"> Thermodynamic Properties of Refrigerants. Chemical properties of refrigerants.
	3 RD	<ul style="list-style-type: none"> commonly used refrigerants, R-11, R-12, R-22, R-134a, R-717
	4 TH	<ul style="list-style-type: none"> Substitute for CFC
	1 ST	<ul style="list-style-type: none"> Applications of refrigeration cold storage
10 TH	2 ND	<ul style="list-style-type: none"> dairy refrigeration
	3 RD	<ul style="list-style-type: none"> ice plant water cooler
	4 TH	<ul style="list-style-type: none"> frost free refrigerator
	1 ST	6. PSYCHOMETRICS & COMFORT AIR CONDITIONING SYSTEMS <ul style="list-style-type: none"> Psychometric terms
11 TH	2 ND	<ul style="list-style-type: none"> Adiabatic saturation of air by evaporation of water Psychometric chart and uses.
	3 RD	<ul style="list-style-type: none"> Psychometric processes Sensible heating and Cooling
	4 TH	<ul style="list-style-type: none"> Cooling and Dehumidification Heating and Humidification
	1 ST	<ul style="list-style-type: none"> Adiabatic cooling with humidification Total heating of a cooling process
12 TH	2 ND	<ul style="list-style-type: none"> SHF, BPF,
	3 RD	<ul style="list-style-type: none"> Adiabatic mixing Problems on above.
	4 TH	<ul style="list-style-type: none"> Effective temperature and Comfort chart

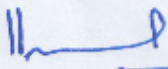


Handwritten signature and date:
 R. Brindha
 27/10/24

13 TH	1 ST	• Problems on above.
	2 ND	• Discussion of probable question
	3 RD	• CLASS TEST
	4 TH	7. AIR CONDITIONING SYSTEMS <ul style="list-style-type: none"> • Factors affecting comfort air conditioning. . • Equipment used in an air-conditioning
14 TH	1 ST	• Classification of air-conditioning system
	2 ND	• Winter Air Conditioning System
	3 RD	• Summer air-conditioning system.
	4 TH	• Numerical on above
15 TH	1 ST	• Numerical on above
	2 ND	• Numerical on above
	3 RD	• Discussion of probable question
	4 TH	• CLASS TEST

Learning Resources:

01. REFRIGERATION AND AIRCONDITIONING BY C.P ARRORA, TMH
02. REFRIGERATION AND AIRCONDITIONING BY R.S. KHURMI & J.K. GOPTA, S. CHAND
03. REFRIGERATION AND AIRCONDITIONING BY P.L. BALLANY, KHANNA PUBLISHER
04. REFRIGERATION AND AIRCONDITIONING BY DOMKUNDRAN AND ARORA, DHANPAT RAY AND SON

v.i.f

 29.06.24
 Principal
 GIET (Polytechnic)
 Jagatpur, Cuttack


 29/06/24

Prepared By

Pravat Kumar Swain
 Lecturer In Mechanical Engg.
 G.I.E.T (Polytechnic), Jagatpur, Cuttack

