Q.P. Code: 18ME0335 **R18**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Regular Examinations Feb-2021

REFRIGERATION & AIR CONDITIONING

(Agricultural Engineering)

Time: 3 hours Max. Marks: 60

PART-A

(Answer all the Questions **5 x 2 = 10** Marks)

1	a	Define Refrigeration.	2M
	b	Explain the function of expansion valve.	2M
	c	Explain the function of vapor absorption system.	2M
	d	What do you understand by the term psychrometry?	2M
	e	Define Effective Temperature.	2M

PART-B

(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

2	a	List out the applications of refrigeration system.	3M
	b	With a neat sketch describe a Reduced ambient air refrigeration system.	7M

OR

3		An air refrigerator working on Bell Coleman cycle takes the air into the compressor at 1.0 bar and -7^0 C and is compressed isentropically to 5.50 bar and it is further cooled to 18^0 C at the same pressure. Find the C.O.P of the refrigerator for the following cases (a). The expression is isentropic (b). The expression follows the law $PV^{1.25}$= constant. Take $\gamma = 1.4$ and Cp = 1 KJ/Kg K.	10M

UNIT-II

4	a	List the application of cascade refrigerant system.	3M
	b	With a neat sketch, explain the working principle of vapour compression refrigeration system.	7M

OR

5		Sketch and explain a two-stage cascade refrigeration system.	10M

UNIT-III

6	a	Advantages of vapour absorption refrigeration system over vapour compression refrigeration system.	5M
	b	State the advantages and limitations of Vapour Absorption Refrigeration System.	5M

OR

7		Explain with help of a neat sketch, the working of a steam jet refrigeration system.	10M

UNIT-IV

8		Explain the procedure to draw a grand sensible heat factor line on a psychrometric chart.	10M

OR

9	a	Define Sensible heat factor.	5M
	b	With help of psychrometric chart, Explain the following processes (i).Sensible hearting (ii) Sensible cooling.	5M

UNIT-V

10		With neat diagram, explain the working of summer air conditioning system.	10M

OR

11	a	Define the terms static and velocity pressure in a duct.	5M
	b	Derive an expression for continuity equation in ducts.	5M

END