PRN:		Course Code:	MET 2702

Final Year **B. Tech** End Semester Examination Summer 2024

Refrigeration and Air Conditioning

Day and Date: 24 MAY 2024. Friday Max Marks: **100**

Time: 10.30am to 1.30PM Duration: **03** hrs

Instructions: All questions are compulsory.

		Marks	Bloom's Level	CO
Q.1	**Attempt the following**			
a)	Define Refrigeration and Explain the meaning of 1TR capacity of refrigeration.	08	L1	2702.1
b)	Explain the difference between heat engine, heat pump and refrigerating machine.	08	L1	2702.1
	OR			
b)	Discuss the Limitations of Carnot Cycle with Gas as a Refrigerant.	08	L1	2702.1
Q.2	**Attempt the following**			
a)	Explain Vapour Compression Cycle with the help of PV and Ts diagram.	08	L2	2702.2
b)	Explain Actual Vapour Compression Cycle with neat sketch.	08	L2	2702.2
	OR			
b)	What is flash chamber? Explain two stage compression with intercooler.	08	L2	2702.2
Q.3	**Attempt any two from the following**			
a)	Classify refrigerants and give suitable examples for each type of refrigerants.	08	L2	2702.3
b)	What are the Thermodynamic, physical, and chemical properties of refrigerants?	08	L3	2702.3
c)	Explain with suitable sketch Hermetically sealed compressor.	08	L3	2702.3
Q.4	**Attempt any two from the following**			
a)	Write a note on psychrometric chart and explain the processes on it.	08	L3	2702.4
b)	Define Relative humidity and Degree of saturation.	08	L3	2702.4
c)	Differentiate with suitable sketch Summer air conditioning and Winter air conditioning systems.	08	L3	2702.4
Q.5	**Attempt any Two of the following**			
a)	Explain: i. Room Sensible Heat Factor ii. Gross Sensible Heat Factor iii. Effective Room Sensible Heat Factor	09	L4	2702.5
b)	Write different Heat sources in designing air conditioning systems.	09	L4	2702.5

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	c) Explain Unitary Products and Central air conditioning systems with suitable examples.	09	L4	2702.5
Q.6	**Attempt any Two of the following**			
	a) What are the Energy Conservation methods? Explain the concept of Green Buildings. Also explain the application of both with suitable example.	09	L4	2702.5
	b) With neat sketch discuss the various duct layouts. Also write the requirements of air distribution.	09	L4	2702.5
	c) Explain with suitable layout for cold storage air conditioning systems.	09	L4	2702.5

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