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PRN:		Course Code:	MET 2702

Final Year **B. Tech** End Semester Examination Winter 2023

Refrigeration and Air Conditioning

Day and Date: Thursday, 30/11/2023 Max Marks: **100**

Time : 2.00 to 5.00 PM Duration: **03** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Explain the difference between heat engine, heat pump and refrigerating machine.	08	L1	2702.1
	b)	Define Refrigeration, COP of refrigerating machine and explain the meaning of 1TR capacity of refrigeration.	08	L1	2702.1
		OR			
	b)	Discuss the comparison between reversed Carnot cycle and Reversed Brayton cycle.	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)	What is flash chamber? Explain two stage compression with intercooler.	08	L2	2702.2
		OR			
	b)	Explain dry versus wet compression in a Refrigeration system.	08	L2	2702.2
Q.3		**Attempt any two from the following**			
	a)	What are the Thermodynamic, physical, and chemical properties of refrigerants?	08	L2	2702.3
	b)	Explain with suitable sketch Hermetically sealed compressor.	08	L3	2702.3
	c)	Discuss the Effect of Ozone depletion and global warming.	08	L3	2702.3
Q.4		**Attempt any two from the following**			
	a)	Explain the Psychometric properties of air.	08	L3	2702.4
	b)	Show the various processes associated with Air conditioning on Psychrometric chart and discuss.	08	L3	2702.4
	c)	Write a note on, i. Summer air conditioning ii. Winter air conditioning	08	L3	2702.4
Q.5		**Attempt any Two of the following**			
	a)	Explain the factors of Cooling Load estimation in designing air conditioning systems.	09	L4	2702.5
	b)	Explain: i. Room Sensible Heat Factor ii. Gross Sensible Heat Factor	09	L4	2702.5

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	iii.	Effective Room Sensible Heat Factor			
	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.	09	L4	2702.5
	b)	Write a note on:			
		i. Re-circulated air	09	L4	2702.5
		ii. Ventilation air			
	c)	Explain with suitable layout, duct systems for hospitals air conditioning.	09	L4	2702.5

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