

GUJARAT TECHNOLOGICAL UNIVERSITY**B.VOC - SEMESTER- IV EXAMINATION – SUMMER 2024****Subject Code: 21140404****Date:22-05-2024****Subject Name: Advanced Refrigeration Systems****Time:10:30 AM TO 12:30 PM****Total Marks:50****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

	Marks
Q.1 (a) Difference between Heat pump and Heat engine.	05
(b) Elaborate the selection procedure of refrigerant.	05
Q.2 (a) What is the difference between primary refrigerants and secondary refrigerants?	05
(b) Explain the properties of commonly used refrigerant.	05
OR	
(b) Define zeroth law of thermodynamics and first law of thermodynamics with its application.	05
Q.3 (a) Comparison of various air-cooling systems used for aircraft.	05
(b) Explain Simple air-cooling system.	05
OR	
Q.3 (a) Write a short note on Regenerative air-cooling system.	05
(b) Define the Air refrigeration system with its Merits and Demerits.	05
Q.4 (a) Explain Multiple evaporators at different temperatures with individual compressors and individual expansion valves.	05
(b) What are the advantages and disadvantages of compound compression refrigeration systems?	05
OR	
Q.4 (a) What are the economic factors influencing the duct layout?	05
(b) What are the various methods for determination of duct design? Explain any one of them.	05
Q.5 (a) Explain Velocity reduction method for determination of duct design.	05
(b) Discuss about Cryogenic refrigeration system.	05
OR	
Q.5 (a) Discuss the Cascade refrigeration systems with its application.	05
(b) Discuss regarding the different material used for duct in detail.	05
