

GUJARAT TECHNOLOGICAL UNIVERSITY**BVOC- SEMESTER– IV EXAMINATION – SUMMER 2023****Subject Code:21140404****Date:01-07-2023****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 Engine and Heat pump.	05
(b) Explain how the refrigerants are important.	05
Q.2 (a) Elaborate the selection procedure of refrigerant.	05
(b) Explain the Properties and uses of commonly used refrigerant.	05
OR	
(b) Define zeroth law of thermodynamics and first law of thermodynamics and Second law of thermodynamics.	05
Q.3 (a) Explain Simple air-cooling system.	05
(b) Comparison of various air-cooling systems used for aircraft.	05
OR	
Q.3 (a) Explain Boot strap air cooling system.	05
(b) Write down the Merits and Demerits of Air refrigeration system.	05
Q.4 (a) Explain Multiple evaporators at different temperatures with single compressor, multiple expansion valves and back pressure valves.	05
(b) What are the advantages of compound compression refrigeration systems?	05
OR	
Q.4 (a) What are the economic factors influencing the duct layout?	05
(b) Explain Velocity reduction method for determination of duct design.	05
Q.5 (a) What is the use of friction chart in duct design?	05
(b) Explain Vortex tube refrigeration in detail.	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
