

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII (NEW) - EXAMINATION – SUMMER 2017****Subject Code: 2181917****Date: 04/05/2017****Subject Name: Cryogenic Engineering(Department Elective II)****Time: 10:30 AM to 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain with neat sketch Joule-Thomson refrigeration system. **07**
(b) Explain with neat sketch Gifford-McMahon refrigerator. **07**
- Q.2** (a) Define superconductivity. What is Type-I and Type-II superconductors? **07**
Explain Meissner effect with sketch.
(b) Write short note on “Properties of liquid Hydrogen”. **07**
- OR**
- (b) Write short note on “Properties of He 4”. **07**
- Q.3** (a) List the types of insulations used in cryogenic equipments. Explain any one in brief. **07**
(b) Explain with neat sketch cylindrical cryogenic fluid storage vessel. **07**
- OR**
- Q.3** (a) Write short note on Multilayer Insulation. **07**
(b) Explain with neat sketch the different types of cryogenic heat exchangers. **07**
- Q.4** (a) Explain Principle of rectification with neat sketch. **07**
(b) Write short note on Magnetic cooling. **07**
- OR**
- Q.4** (a) List the temperature measuring instruments used in cryogenic applications. **07**
Explain any one in brief.
(b) Explain Orifice meter to measure flow rate of cryogenic fluids. **07**
- Q.5** (a) List the Liquid level measuring gauges. Explain Hydrostatic gauges. **07**
(b) Write short note on “Safety against cryogen hazard”. **07**
- OR**
- Q.5** (a) Write short note on “Space simulation chamber”. **07**
(b) Explain in brief “Applications of cryogenics in biology and medicine”. **07**
