Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– I (OLD course)• EXAMINATION – SUMMER 2015

Subject Code: 711004N **Date:15/05/2015**

Subject Name: Element of cryogenic Engineering

Time: 10:30 am to 1:00 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)	Define cryogenics. Discuss the importance of its.	07
	(b)	Discuss the change in any three mechanical properties at cryogenic temperature.	07
Q.2	(a)	Explain opacified-powder insulations.	07
	(b)	Write in detail about multilayer insulation.	07
		OR	
	(b)	Explain the properties of hydrogen at low temperature.	07
Q.3	(a)	Describe with neat sketch thermodynamic Liquid-level gauge used in cryogenic service. What are the limitations of this gauge?	07
	(b)	Explain turbine flow meter.	07
		OR	
Q.3	(a)	What are the different types of thermometer used for low temperature? Describe working of any one thermometer with neat sketch.	07
	(b)	List the Pressure measurement devices and explain thermal conductivity gauge with neat sketch.	07
Q.4	(a)	Write note on space simulation chamber.	07
	(b)	Explain cryogenic application in Rocket propulsion systems.	07
		OR	
Q.4	(a)	Discuss the applications of cryogenic in biology and medicine field.	07
	(b)	Write note on superconducting motor and gyroscopes.	07
Q.5	(a)	What kinds of hazards possible in the field of cryogenic engineering and how will you prevent them?	07
	(b)	Discuss in brief hazards on account of (i) flammability (ii) high pressure gas (iii) materials of construction (iv) personal exposure hazards.	07
		OR	
Q.5	(a)	What are the precautions to be taken for Safety in handling of cryogens?	07
	(b)	List the vacuum measurement devices and explain McLeod gauge with neat sketch.	07

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