Sanjay Ghodawat University, Kolhapur

2020-21

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

EXM/P/09/00

Year and Program: **2020-21 B Tech**	**School of Technology**	**Department:** **Mechanical**
Course Code: **MET 409.3**	**Course Title:** **Cryogenics**	**Semester :** **VII**
Day : Tuesday **Date : 29/12/2020**	**End Semester Examination**	**Time: 2 Hrs.** **Max Marks: 50**

Instructions: 1) All Questions are compulsory.

		Marks	Bloom's Level	CO
Q.1	**Answer the following (any Two)**–			
a)	Define Cryogenics. What are the ideal properties of cryogenic fluids?	8	L2	1
b)	Discuss the Thermal properties of cryogenic material at cryogenic scale.	8	L2	1
c)	Discuss Joule Thomson expansion and the effect of inversion curve on liquefaction of gases.	8	L2	2
Q.2	**Answer the following (any two) –**			
a)	Explain the following: i. Difficulties in Liquefaction of gases like Neon, Hydrogen and Helium. ii. Precooled Linde Hampson system of liquefaction for liquefaction of Neon and Hydrogen.	8	L2	2
b)	Explain Helium refrigerated hydrogen liquefaction system.	8	L2	3
c)	Explain the working of Pulse Tube refrigeration system with the help of schematic sketch.	8	L2	3
Q.3	**Answer the following (any two) –**			
a)	Write short notes on: i. Principles of rectifier column. ii. Single column and double column air separation systems.	9	L3	4
b)	Explain with neat sketch Thermodynamic Ideal refrigeration system.	9	L3	4
c)	Explain basic cryogenic fluid storage vessel with neat sketch.	9	L3	5

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