

B. Tech. Sem - VIII (Mechanical Engg.) (2014 COURSE) (CBCS) :
SUMMER - 2019

SUBJECT : ELECTIVE – III : CRYOGENICS

Day : Thursday

Time : 02.30 PM TO 05.30 PM

Date : 30/05/2019

S-2019-2920

Max. marks : 60

N. B. :

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw neat and labeled diagram **WHEREVER** necessary.
 - 4) Assume suitable data, if necessary.
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Q. 1 Which are the important properties of cryogenic materials? Discuss thermal properties of materials used in cryogenics. **(10)**

OR

Discuss the properties of cryogenic materials and fluids. Also explain their electric and magnetic properties. **(10)**

Q. 2 Classify the different gas liquification systems. Explain the liquification of Helium. **(10)**

OR

Explain with sketch Nitrogen and Hydrogen gas liquification systems. **(10)**

Q. 3 Explain G-M coolers and J-T coolers with block diagrams. **(10)**

OR

Discuss the overview of regenerative coolers. Explain sterling cooler with neat sketch. **(10)**

Q. 4 Discuss different properties of mixtures. Explain principles of gas separation. **(10)**

OR

Discuss the Linde single and double column system of air separation. **(10)**

Q. 5 Discuss different types of insulation and its importance. Explain components of transfer system with importance. **(10)**

OR

Explain the importance of vacuum and its measurement. **(10)**

Q. 6 Discuss different electrical applications of cryogenics. **(10)**

OR

Discuss the different food preservation applications of cryogenics. **(10)**

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