C 1082 (Pages : 2) Name.....

Reg. No.....

EIGHTH SEMESTER B.TECH. [ENGINEERING] (09 SCHEME) DEGREE EXAMINATION, APRIL 2016

ME/PTME 09 803 L12/AM 09 804 L11—CRYOGENIC ENGINEERING

Time : Three Hours Maximum : 70 Marks

Part A

Answer **all** *questions.*

1. Define the term 'cryogenics'.
2. What is inversion temperature ?
3. What is cryogenic refrigeration ?
4. What is vacuum technology ?
5. What is cryo pumping ?

(5 × 2 = 10 marks)

Part B

Answer any **four** *questions.*

6. Write short notes on superconductivity.
7. Explain magnetic cooling.
8. Write short notes on cryo-coolers.
9. Explain the importance of refrigerator effectiveness in brief.
10. Brief about the systems adopted to transfer the cryogenic fluid.
11. What is super insulation ? Explain.

(4 × 5 = 20 marks)

Part C

Answer **all** *questions.*

12. (a) Explain mechanical and thermal properties of engineering materials at cryogenic temperature.

Or

(b) Explain the various applications of cryogenic systems in brief.

13. (a) With a neat sketch, explain the pre-cooled Linde Hampson system for liquefaction of Neon and Hydrogen gases.

Or

(b) Discuss the significance of segmentation, targeting and positioning in a company's marketing strategy ?

Turn over

14. (a) With the neat sketch and explain about G-M refrigerator.

Or

(b) With a neat sketch explain magnetic refrigeration system.

15. (a) Explain the importance of insulation in cryogenics with their types.

Or

(b) Sketch and mention the parts of Dewar cryogenic storage vessel.

(4 × 10 = 40 marks)