Total No. of Questions : 8] *[Total No. of Printed Pages : 1*

Roll No .....

AU/IP/IEM/PR/ME-402 (GS)

B.E. IV Semester Examination, June 2020

Grading System (GS)

Material Science and Metallurgy

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) What is the use of Aston process?
   b) What is the use of L.D. Process?

2. What is solid solution? Explain Hume Rothery's rules for substitutional solid solution.

3. Define single crystal, polycrystalline and amorphous solids.

4. Explain Griffith's theory for fracture. Also write the expression of Miner's linear rule for cumulative fatigue damage.

5. a) What is TTT diagram? Explain in brief.
   b) Explain in brief the case hardening.

6. State 'Gibb's phase rule'. What is its importance/utility?

   OR

   Draw the iron-carbon equilibrium diagram and explain it.

7. a) Explain the meaning of term elastomer.
   b) Explain in brief the various types of plastics.

   OR

   State the advantages and disadvantages of powder metallurgy.

8. Write short notes on any two:
   a) Manufacturing of steel
   b) Annealing and its effect
   c) Hardening and its advantages
   d) Powder metallurgy

******