Total No. of Questions – [8]

Total No. of Printed Pages 02

G.R. No.	

Paper Code - U218-156 (BE-FS)

MAY 2019/ENDSEM
S. Y. B. TECH. (MECHANICAL) (SEMESTER - I)
COURSE NAME: MATERIAL SCIENCE AND ENGINEERING METALLURGY
COURSE CODE: MEUA21176

(PATTERN 2017)

Time: [**2 Hours**] [Max. Marks: **50**]

(*) Instructions to candidates:

1) **Answer Q.1, Q.2, Q.3, Q.4, Q.5 OR Q.6, Q.7 OR Q.8**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed**
4) **Use suitable data where ever required**

Q.1) a) Determine with a neat diagram all the type of zero dimensional defect? [6 marks]

OR

b) HCP metal show the deformation by which mechanism? Explain Why? [6 marks]

Q.2) a) For the same metal grain size is coarse grain , which property is better? Explain in detail? [6 marks]

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OR

b) Write a short note on : advantages and disadvantages of Dye penetrant test over Radiography? [6 marks]

Q.3) a) Explain the polishing in metallography. Explain the all grades of Polishing. [6 marks]

OR

b) Define: 1. Microscopy 2. Variable 3. Eutectic system? [6 marks]

Q.4) a) Define the following: 1.Austnite 2.Delta ferrites [4 marks]

OR

b) What is the classification of steels on percentage of carbon method? [4 marks]

Q. 5) a) Define 1,Steel 2. Ferrite stabilizer 3 Neutral elements? [6 marks]
b) What is Gray CI? Which element is added are more in GCI. [4 marks]
c) What is 1] White cast iron 2] Malleable cast iron [4 marks]

OR

Q.6) a) Define 1. O grade in tool steel 2. CCR 3.Tempering [6 marks]
b) With proper TTT diagram show Conventional Annealing and isothermal . [4 marks]
annealing on TTT curve
c) Explain the role of allying elements in tool steel. [4 marks]

Q.7) a) Define 1. Annealing 2. Ps in TTT 3. Mf in TTT [6 marks]
b) Draw the microstructure Annealing and normalising AISI 1060 steel. [4 marks]
c) Which elements are present in brass and explain their role? Explain? [4 marks]

OR

Q.8) a) Define 1, Cooling media 2, Retained Austenite 3. Steel region [6 marks]
b) With proper Iron Carbon diagram draw Normasing on it? [4 marks]
c) Explain the disadvantages of normalising fromA1 for hypereutectoid steel [4 marks]