

Total No. of Questions – [04]

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G.R. No.

U218-156 (T2)

OCTOBER 2018/ IN-SEM (T2)

S. Y. B. TECH. (MECHANICAL ENGINEERING) (SEMESTER - I)
COURSE NAME: MATERIAL SCIENCE AND ENGINEERING
METALLURGY

COURSE CODE: MEUA21176

(PATTERN 2017)

Time: [1 Hour]

[Max. Marks: 30]

(*) Instructions to candidates:

- 1) Answer Q.1 OR Q.2 and Q.3 OR Q.4.
- 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) Define the following [6 marks]
i] Eutectic system ii] NA of objective iii] Equilibrium diagram
b) Draw the diagram of metallurgical microscope and label it? [6 marks]
And label it properly?
c) Write the rules of solid solution formation? [4 marks]

OR

- Q.2) a) Define the following [6 marks]
i] Dark field illumination ii] Macro-reagent iii] polishing
b) Two metals are having 100% solubility in liquid state and 0% in solid state, draw the equilibrium diagram when the mixture is existing at 30%B at 415 temperature for reaction and 800 and 1000 are melting of A and B respectively? Label it properly? [6 marks]
c) One microscope is having 50X and 20X eyepiece power and 10X as objective lence? Which one will show the clear image and why? [4 marks]

- Q.3) a) Define the following [6 marks]
i] Ledeburite ii] Austenite iii] Delta ferrite
b) Write first two reaction with temperature on iron carbon system from lower to higher? [4 marks]
c) What are the advantage of steel over cast iron? [4 marks]

OR

- Q.4) a) Define the following [6 marks]
i] Hyper-eutectoid steel ii] Allotropy iii] Pearlite
b) Explain what is AISI 1020 and En 8? [4 marks]
c) Draw the Iron Carbon diagram and label it? [4 marks]