Total No. of Questions : 4]

PC-437

[6359]-558

S.E. (Robotics & Automation Engineering) (Insem.) MATERIAL SCIENCE AND ENGINEERING METALLURGY

(2019 Pattern) (Semester - III) (211503) (Theory)

Time : 1 Hour]

Instructions to the candidates :

- 1) Attempt Q1 or Q2, Q3 or Q4.
- 2) Assume Suitable data if necessary.
- 3) Figures to the right indicate full marks.
- 4) Draw neat figures whenever necessary.
- 5) Use of scientific calculators is allowed.
- 6) Use of cell phone is prohibited in the examination hall.
- Q1) a) What is deformation of metals? What is importance of plastic deformation? [8]
 - b) What is meant by Nondestructive test (NDT)? Explain Eddy current tests.

OR

- Q2) a) What is Schmid's Law? Explain geometrical hardening and geometrical softening phenomena. [8]
 - b) Give principal of Brinell Hardness Test? Which are factors that affects brinell hardness test. [7]

Q3) a) Define following terms related to phase diagram. [8]

- i) Solid solution ii) Variable
- iii) Intermediate phase iv Component
- b) Explain Partial Eutectic Systems and also give its examples. [7]

OR

P.T.O.

[Max. Marks : 30]

[Total No. of Pages : 2

SEAT No. :

Explain the following in brief: *Q4*) a)

- Gibb's phase rule. i)
- Hume Rothery's rule of solid solubility.

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e? Explain the Breach of the second Contract What is a dendrite? Explain the mechanism of formation of dendrites.

[8]

[7]

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