S.E. (Robotics & Automation Engineering)
MATERIALS SCIENCE AND ENGINEERING METALLURGY
(2019 Pattern) (Semester - I) (211503)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

1) *Attempt Q.1 or Q.2, Q.3 or Q.4.*
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) Explain the term slip and twinning. **[8]**

b) Give principal of Vickers Hardness Test? Which are factors that affects Vickers hardness test. **[7]**

OR

Q2) a) Differentiate between Cold and Hot working of metals? **[8]**

b) State the advantage of Rockwells hardness tests over the other tests of hardness measurement. **[7]**

Q3) a) What is a dendrite? Explain the mechanism of formation of dendrites. **[8]**

b) Draw equilibrium diagram that illustrate the existence of a Peritectic reaction. **[7]**

OR

Q4) a) Explain the following in brief: **[8]**

i) Hume Rothery's rule of solid solubility.

ii) Gibb's phase rule.

b) What is coring? Which alloys show cored structure and under what condition? **[7]**

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