

SUBJECT CODE NO:- P-29
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(MECH/PROD) Examination May/June 2017
Metallurgy & Materials
(Revised)

[Time:ThreeHours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i) Solve any three questions from each section.
 - ii) Figure to right indicate full marks.
 - iii) Assume suitable data wherever required
 - iv) Draw suitable diagram if required

Section A

- Q.1 a) What is miller indices? With example explain how to determine miller indices. 07
b) With neat sketch explain different types of point defects. 06
- Q.2 a) Explain in detail solid solution strengthening with factors affecting strength. 07
b) What is Gibb's phase rule? State its significance to cooling curve of pure metal. 06
- Q.3 a) Explain the terms. 06
i) Space lattice
ii) Equi-axed and columnar grain
- b) Draw a neat sketch of Eutectic phase diagram of system showing complete insolubility in solid state and explain it. 07
- Q.4 a) Draw a neat sketch of CCT diagram and explain different phase formation on it. 07
b) What is purpose of normalizing neat instrument? Explain the process in detail 06
- Q.5 Write short note on any two 14
1) Retained austenite
2) Critical temperatures on Fe-c equilibrium diagram
3) Strain hardening.

Section B

- Q.6 a) What are the factors affecting the microstructure of cast iron? Explain them. 07
b) What is austenitic stainless steel? Explain and give its application 06
- Q.7 a) What is free cutting steel? Explain. 06
b) What is grey cast iron? Explain. 07
- Q.8 a) What is α -Brass? Explain different important brasses from this group 07
b) Give classification of aluminum alloys and explain. 06
- Q.9 a) What is metal matrix composite? Explain with example. 07
b) State the properties of ceramic material and give its application. 06
- Q.10 Write short note any two. 14
1) Nano materials
2) Tin bronze
3) Carburizing