Total No. of Printed Pages:2

SUBJECT CODE NO:- E-212
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E. (MECH/PROD) Examination Nov/Dec 2017
Metallurgy & Materials
(REVISED)

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

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

Section A

Q.1 a) What is meant by Miller indices? Outline the method of obtaining Miller indices in a cubic crystal. 07

b) Define Atomic packing factor and find out atomic packing factor for FCC. 06

Q.2 a) What is meant by solid solution and explain their types. 06

b) Draw and label Iron-Iron carbide diagram and explain phases in it. 07

Q.3 a) Explain full annealing heat treatment process and give its objective. 07

b) Write a short note on carburizing 06

Q.4 a) Describe briefly the following line defects: 07
i) Edge dislocation
ii) Screw dislocation

b) Explain Austempering process 06

Q.5 Write short note on (Any two) 14
a) Solid solution Strengthening
b) TTT diagram
c) Jominy End quench test.

Section B

Q.6	a)	Classify the steel on the basis of carbon content. Give its properties and application.	07
	b)	What is free cutting steel? Why is it called so? Explain.	06
Q.7	a)	What is effect of alloying elements on microstructure or C.I.?	07
	b)	What is tool steel and explain high carbon high chromium (HCHC) steels?	06
Q.8	a)	What is α −brass? Explain different important brasses from this group.	07
	b)	Write a note on "properties and application of Aluminium and its alloys"	06
Q.9	a)	State the properties of ceramic material and give its application.	07
	b)	What is composite? Explain carbon-carbon composite.	06
Q.10		Write a note on (<u>any two</u>)	14
	a)	Malleable cast iron	
	b)	Bronze and its alloy	
	c)	Glasses fits properties and application	