Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name : Material Technology

Subject Code : 4TE03MTE1 **Branch: B.Tech (Mechanical)**
Semester: 3 **Date: 04/04/2018** **Time: 02:30 To 05:30** **Marks: 70**

Instructions:
(1) Instructions written on main answer book are strictly to be obeyed.
(2) Draw neat diagrams and figures (if necessary) at right places.
(3) Assume suitable data if needed.

Q-1 **Attempt the following questions:**

1)	Explain the term Service requirements of engineering materials.	**2**
2)	Write any four mechanical properties of materials.	**2**
3)	Write Peritectic reaction.	**2**
4)	What condition does the Pb-Sn alloy system follow to form a solid solution?	**2**
5)	Low carbon steel is also called Plain carbon steel. Write true or False	**1**
6)	Define the term: Toughness.	**1**
7)	Full form of BHN is _____.	**1**
8)	Out of these which is not NDT? Torsion test, Magnetic particle test, Radiography, Dye penetrant test.	**1**
9)	Schottky defect is line type of defect. True or False?	**1**
10)	Write any two metal powder characteristics need to be checked.	**1**

Attempt any four questions from Q-2 to Q-8

Q-2		Draw a neat and labeled sketch of Iron Carbon equilibrium diagram and show all reactions with necessary explanations.	14
Q-3	(a)	Discuss and draw the microstructure and applications of Grey cast iron.	**7**
	(b)	Explain the effect of following elements on steel. (i) Carbon and (ii) Silicon	**7**
Q-4	(a)	Write a note on Castability of metals and alloys.	**5**
	(b)	Write a note on FCC structure.	**5**
	(c)	Define the terms : Atomic Radius and Atomic Packing Factor	4
Q-5	(a)	What is the theory of tempering? Discuss the stages of tempering process.	**7**
	(b)	Write a note on Pack carburizing process.	**7**
Q-6	(a)	Write a note on X-Ray radiography test.	**7**

	(b)	Discuss the history of Grossmann method and discuss the Jominy end quench test with neat sketches.	**7**
Q-7	(a)	Explain with neat sketch and effect of different cooling rates using TTT diagram.	**7**
	(b)	Write a note on Cu – Ni equilibrium diagram.	**7**
Q-8	(a)	Discuss with neat sketch the Presintering and Sintering processes.	**7**
	(b)	Give major applications of powder metallurgical processes.	**7**