Seat No.:	Enrolment No.
2 Cut 1 10 II	Zin omitin 1 (o

GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-VII EXAMINATION - WINTER 2015

	•	Code: 172101 Date:12/12/2015	
Tir		Name: Physical Metallurgy-II 0:30am to 1:00pm Total Marks: 70 as:	
		Attempt all questions.	
Q.1	(a) (b)	Describe mechanism of formation of austenite on heating. Write a short note on Hull-Mehl model of pearlitic transformation	07 07
Q.2	(a) (b)	What is hardenability? Discuss Jominy hardenability test. Which are different surface hardening heat treatments of steel? Explain about pack carburizing.	07 07
	(b)	OR Draw Time-Temperature -Transformation (T T T) diagram for hypereutectoid steel and explain it.	07
Q.3	(a) (b)	Short note on Austempering. Differentiate between upper and lower bainite. OR	07 07
Q.3	(a)(b)	What is austenitic grain size? Write the method of austenitic grain size letermination and give its importance. Define Annealing. List different types of annealing processes. Explain full annealing	07 07
Q.4	(a)	Explain heat treatment of EN-8 Steel with it's composition, microstructure, heat treatment, properties and application.	07
	(b)	Discuss sub-zero treatment. OR	07
Q.4	(a)	What do you understand by Diffusion less martensitic transformation? Explain the effect of applied stress on martensitic transformation.	07
	(b)	What is nitriding? Describe the plasma nitriding technique	07
Q.5	(a) (b)	Explain heat treatment of HSS tool steel. Which are different defects in heat-treated parts? explain their causes and possible remedies for defects like Decarburization, Overheating. OR	07 07
Q.5	(a) (b)	Short note on thermo mechanical treatment. What is quenching? Discuss different Characteristics of quenchants and explain mechanism of quenching.	07 07
