Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

Date:02/06/2016

BE - SEMESTER-III EXAMINATION - SUMMER 2016

Subject Code:132102

Ti	Subject Name:Metallurgical Thermodynamics Time:10:30 AM to 01:00 PM Instructions: 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks.		0
Q.1	(a)	What do you understand by System? With suitable examples give different classification of System.	07
	(b)	State Zeroth law of thermodynamics and give its significance. Differentiate between extensive and intensive properties.	07
Q.2	(a) (b)	Briefly discuss reversible and irreversible processes. Write note on quasistatic process.	07 07
		OR	
	(b)	State First Law of Thermodynamics and explain each terminology. Give its significance.	07
Q.3	(a)	Derive $C_P - C_V = R$.	07
	(b)	Define Heat Capacity and prove that $C_P > C_{V}$ OR	07
Q.3	(a)	What is thermodynamics? Give its objectives, advantages, limitations and applications.	07
	(b)	What is free energy? Discuss different free energy concepts.	07
Q.4	(a) (b)	Define Equilibrium and explain different types of equilibrium. Derive combined expression of 1 st and 2 nd law of thermodynamics in terms of internal energy, enthalpy, helmholtz' and gibb's free energy. OR	07 07
Q.4	(a)	Explain isothermal, isobaric, isochoric and adiabatic processes briefly. State Hess's Law and give its features.	07
	(b)	State 2 nd and 3 rd law of thermodynamics. Give Nernst heat theorem.	07
Q.5	(a) (b)	Write note on Ellingham Diagram and its importance. State Gibb's phase rule and explain its each term.	07 07
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Q.5	(a) (b)	Explain entropy, activity, fugacity, mole fraction Explain Raoult's law, Henry's law and Sievert's law.	07 07
