Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV(New) • EXAMINATION - WINTER 2016

Subject Code:2142107 Date:24/11/2016

Subject Name: Iron Making

Time:02:30 PM to 05:00 PM Total Marks: 70

Instructions:

- 1. Attempt all questions.
- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.

			MARKS		
Q.1		Short Questions	14		
	1	Write names of Ores of Iron With % Fe Content (Approx.).	01		
	2	Mention three raw materials used in making iron?	01		
	3	Name reducing agent in the blast furnace?	01		
	4	What is Basicity?	01		
	5	Write function of flux in Blast furnace.	01		
	6	What is RAFT ?	01		
	7	Define "High Temperature Blast".	01		
	8	Define Blast furnace Slag.	01		
	9	Mention Gas Cleaning devices in Blast furnace.	01		
	10	What is Dead men's zone is blast furnace.	01		
	11	Define Sponge Iron.	01		
	12	List down the refractories used Stack, Bosh/Belly & Hearth.	01		
	13	What is HTP. ? Write in 1-2 sentences only.	01		
	14	What is function of Cowpar Stove?	01		
Q.2	(a)	Explain Evaluation of Iron Ore	03		
	(b)	Classify various testing methods of Raw materials	04		
	(c)	Discuss blast furnace reactions in- Stack, Tuyere, Bosh and Hearth	07		
		OR			
	(c)	Explain and draw Bell Less Charging systems & its	07		
	(C)	benefits	07		
Q.3	(a)	Discuss objectives and variables of sintering process	03		
	(b)	Explain"Dwight-Lloyed" Sintering Machine	04		
	(c)	What is Pelletization? Explain theory of bonding and	07		
		mechanism of ball formation in pelletization			
	OR				
Q.3	(a)	Discuss importance of maintaining basicity in Iron making	03 04		
	(b)				
		furnace? Justify the use of Mini blast furnace to			
	(a)	overcome them Write short notes on the following:	07		
	(c)	(i) RAFT (ii) Desiliconization	07		
Q.4	(a)	What is desulphurizing index?	03		
ų.	(b)	State the requirements for desulphurization of hot metal	03		
	(c)	List the factors affecting charge distribution in blast	07		
	(0)	furnace			
OR					
Q.4	(a)	Draw & List only operational steps of blast furnace.	03		
~	(b)	How oxygen injection in blast furnace improves the	04		
	. ,	operation? Explain			
	(c)	Write note on Blast furnace gas, properties, cleaning and	07		
		utilization.			

Q.5	(a)	What are different alternative iron making processes?	03
	(b)	Explain Midrex process.	04
	(c)	Discuss use of high temperature blast and its effect on coke rate and metal-impurity distribution in slag and metal	07
		OR	
Q.5	(a)	Write note on pulverized coal injection.	03
	(b)	Difference between direct reduction & Indirect reduction in iron making process	04
	(c)	Discuss briefly blast furnace irregularities and their remedial measures	07
