Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V • EXAMINATION – WINTER • 2014

Subject Code: 152101 Date: 26-11-2014

Subject Name: Iron Making

Time: 10.30 am - 01.00 pm Total Marks: 70

Instructions:

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

Q.1	**(a)**	Explain different variety of iron ore (In Fe%) , their occurrences worldwide.	**07**
	(b)	Why agglomeration (Nodulising) of iron ore is necessary. Define sinter and pallet.	**07**
Q.2	**(a)**	Write about Testing & evaluation of various raw materials (iron ore, coal and flux) for iron making	**07**
	(b)	Discuss about the construction features & Mechanisms in Modern Blast Furnace.	**07**
		OR	
	(b)	Give comparison between Bell and bell-less charging systems with necessary sketch	**07**
Q.3	**(a)**	Explain difference between Pig iron , Sponge iron and Hot Briquetted Iron	**07**
	(b)	What are the objectives of Sintering? Explain process of Sintering.	**07**
		OR	
Q.3	**(a)**	List various steps of Palletisation process. Explain in brief about the mechanism of Ball Formation.	**07**
	(b)	Give difference between Direct Reduced Iron and Hot Briquetted Iron	**07**
Q.4	**(a)**	Explain the Reaction in stack, tuyere zone, bosh and hearth of the Blast Furnace.	**07**
	(b)	What is Slag? How it is formed? Explain Slag-metal reactions in brief.	**07**
		OR	
Q.4	**(a)**	Explain about the rate controlling steps in iron-oxide reduction process.	**07**
	(b)	What is High Top Pressure? What are the major benefits obtained with it in Iron Production Process?	**07**
Q.5	**(a)**	Give comparison between reduction of iron oxide by H2 and CO.	**07**
	(b)	Discuss about "Midrex" Process (a direct reduction processes) with necessary flow chart.	**07**
		OR	
Q.5	**(a)**	Discuss in brief only, the various operational steps of blast furnace	**07**
	(b)	Discuss about Blast furnace irregularities and remedial measures	**07**

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