Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – WINTER 2013

Subject Code: 172106 Date: 03-12-2013

Subject Name: Advance Ferrous Metallurgy

Time: 10:30 TO 01:00 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)**	What are the problems of Indian steel plant? Explain.	**07**
	(b)	What are the alternative routes of iron production? Explain Mini blast furnace.	**07**
Q.2	**(a)**	Give different reactions occurring in blast furnace in different sections.	**07**
	(b)	Explain the mechanisms of kinetics of iron oxide reduction in blast furnace	**07**
		OR	
	(b)	How humidifications of Blast improve performance of blast furnace?	**07**
Q.3	**(a)**	How the high temperature and oxygen enrichment of blast improves the performance of blast furnace?	**07**
	(b)	Discuss high temperature properties of iron bearing materials.	**07**
		OR	
Q.3	**(a)**	Discuss in detail about pulverized coal injection.	**07**
	(b)	List ferroalloy materials. Discuss the production of ferrochrome.	**07**
Q.4	**(a)**	With neat diagram of EAF explain the production of steel	**07**
	(b)	Write a short note on sponge iron production.	**07**
		OR	
Q.4	**(a)**	Explain electro slag refining process and role of synthetic slag	**07**
	(b)	Discuss the refractories of blast furnace	**07**
Q.5	**(a)**	Discuss in detail about AOD process of secondary steel making.	**07**
	(b)	Explain continuous casting process with neat sketch.	**07**
		OR	
Q.5	**(a)**	Discuss the process of reduction smelting.	**07**
	(b)	What are the sources of sulfur and phosphorous and what is the effect of it on quality of steel?	**07**

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