Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – SUMMER • 2014

Subject Code: 162102 **Date: 21-05-2014**

Subject Name: Steel 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)**	Give names of the processes in which oxygen, oxygen + lime and Oxygen + hydro carbon are used.	**07**
	(b)	With the help of schematic show various latest routes of steelmaking	**07**
Q.2	**(a)**	Compare LD process and LD-AC process with Neat diagram.	**07**
	(b)	Explain: Reaction at slag metal interface.	**07**
		OR	
	(b)	Discuss the advantages and disadvantages of top and bottom blown processes	**07**
Q.3	**(a)**	Discuss the various components of Electric Arc furnace and discuss in brief, EAF practice for carbon and low alloy steel	**07**
	(b)	Explain in brief, the effect of Sulphur, Phosphorous and gases in Steel	**07**
		OR	
Q.3	**(a)**	List Design Improvements in modern EAF practice. Discuss briefly about UHP arc furnaces.	**07**
	(b)	Explain briefly (i) Carbon Reaction (ii) Phosphorous Reaction (iii) Sulphur Reaction	**07**
Q.4	**(a)**	Explain Ladle Refining process and its uses.	**07**
	(b)	What are the benefits of Secondary Steel Making processes? also Mention few examples of steels subjected to Secondary Steel Making processes	**07**
		OR	
Q.4	**(a)**	Explain with thermodynamic point of view, Under which conditions, Desulphurization and Dephosphorization reactions are achieved?	**07**
	(b)	Compare AOD and VOD processes of Steel Making	**07**
Q.5	**(a)**	Explain the following with neat diagram. (i) Electro-slag Refining process and its benefits. (ii) R-H degassers	**07**
	(b)	Define “inclusions”. Explain what is the effect of inclusions on mechanical Properties of steel.	**07**
		OR	
Q.5	**(a)**	Explain the difference in structure by Ingot Casting and Continuous Casting method	**07**
	(b)	List the defects in Con-cast products. How they can be controlled	**07**

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