

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B. E. - SEMESTER – VI • EXAMINATION – WINTER 2012**

**Subject code: 162102****Date: 03/01/2013****Subject Name: Steel Making****Time: 02.30 pm - 05.00 pm****Total Marks: 70****Instructions:**

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

- Q.1** (a) What is Steel Making process? What are the sources main 07  
sources of heat for steel making processes? List raw  
materials for steel making processes.
- (b) Discuss the mechanism of decarburization reaction and its 07  
reaction rate in LD process.

- Q.2** (a) Explain with sketch application of Ellingham diagram for 07  
steel making process.
- (b) What is BOF practice? Discuss slag-metal reactions in 07  
BOF.

**OR**

- (b) What is mechanism of refining? Explain the same for 07  
sulphur removal.

- Q.3** (a) With a labeled sketch explain functions of different parts of 07  
Electric Arc Furnace (EAF).
- (b) Explain briefly Kaldo process. 07

**OR**

- Q.3** (a) Write short note on: Oxygen lance. 07
- (b) Discuss sequence of EAF operations. 07

- Q.4** (a) Discuss Ladle Refining process with its uses. 07
- (b) What are the sources of inclusions in steel? Explain the 07  
effect of sulphur and phosphorous in steel.

**OR**

- Q.4** (a) Write a note on UHP arc furnace. 07
- (b) What is secondary steel making process? Explain R-H 07  
degasers.

- Q.5** (a) What is ingot casting? Discuss briefly advantages, 07  
disadvantages, defects and remedies of ingot castings.
- (b) Explain how ESR process improves the quality of steel? 07

**OR**

- Q.5** (a) With a schematic sketch show the details of the vertical 07  
mould horizontal discharge type CONCAST machine.
- (b) Write a short note on: Ladle Injection Metallurgy. 07

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