

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI • EXAMINATION – SUMMER • 2014****Subject Code: 162102****Date: 28-11-2014****Subject Name: Steel Making****Time: 2:30 pm - 05:30 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) What is an integrated steel plant? Name the plants and products of these plants in India **07**
 (b) With the help of schematic show various latest routes of steelmaking and explain raw materials and their importance in steel making. **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) List Design Improvements in modern EAF practice. Discuss briefly about UHP arc furnaces. **07**

- Q.3** (a) Explain the Oxygen Lance Construction & advantages and disadvantages of single & multi nozzle lance **07**
 (b) Discuss the advantages and disadvantages of top and bottom blown processes **07**

OR

- Q.3** (a) Explain in brief, the effect of Sulphur, Phosphorous and gases in Steel. **07**
 (b) Explain briefly (i) Carbon Reaction, Reaction, (iii) Silicon Reaction, (iv) Manganese Reaction. **07**

- Q.4** (a) (i) Explain ESR Process in brief & explain improvement in quality by ESR process **07**

- (b) How the nitrogen problem in stainless steel making is dealt with? **07**

OR

- Q.4** (a) List the benefits of Secondary Steel Making and Explain briefly Secondary steel making by AOD process. **04**
 Draw and explain- Ladle Furnace Operation **03**
 (b) Discuss the main requirements of “Deoxidizer” in steel making. **07**
 Explain the purpose and mechanism of its working

- Q.5** (a) Explain the following with neat diagram.
 (i) Ladle Injection Metallurgy **04**
 (ii) R-H degassers **03**
 (b) Explain the difference in structure by Ingot Casting & Continuous Casting method **07**

OR

- Q.5** (a) What are the sources of inclusions? State the measures to control inclusions. **07**
 (b) What is continuous casting (C.C.)? List the parts of C.C. equipment. **07**