

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI • EXAMINATION – SUMMER 2013****Subject Code: 162102****Date: 27-05-2013****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) Name various Integrated and Mini Steel Plants in India. **07**
 (b) List and explain various Raw materials used and their importance in steel making. **07**

- Q.2** (a) Discuss briefly various sequence of operation of Basic Oxygen Furnace (BOF) and List various chemicals reactions occur during process of refining. **07**
 (b) Draw a labelled sketch of EAF and explain functions of its various parts. **07**
 What are HP & UHP arc furnaces?

OR

- (b) Explain in brief, (with neat sketch) construction & working of KALDO furnace. Also state the merits & demerits of this process. **07**

- Q.3** (a) With Neat sketch explain construction of multi-nozzle Oxygen lance and also explain the requirement of supersonic jet. **07**
 (b) Explain the reaction at Slag-Metal Interface. **07**

OR

- Q.3** (a) Draw schematic of Bottom-blown & mixed Blowing Process and List the advantages and disadvantages of top and bottom blown processes. **07**
 (b) Explain the effect of Sulphur, Phosphorous and gases in Steel. **07**

- Q.4** (a) List the benefits of Secondary Steel Making Process and Give few examples of steels subjected to Secondary Steel Making processes **07**
 (b) Explain necessary conditions for Desulphurization & De phosphorization reactions in steel making **07**

OR

- Q.4** (a) Write a Short note on the following (With Neat Sketch)
 (i) Electro Slag refining Process & its Quality of product. **04**
 (ii) Ladle Furnace Operation **03**
 (b) Explain the Deep- Desulphurization technique of controlling Sulphur level in steel. **07**

- Q.5** (a) Explain the following with neat diagram.
 (i) Ladle Injection Metallurgy **04**
 (ii) R-H degassers **03**
 (b) Explain Continuous casting machines with its various units & products **07**

OR

- Q.5** (a) What do you mean by Clean steel? What is the origin of inclusion & explain the types of inclusions present in steel? **07**
 (b) Give comparison between AOD and VOD process with required Schematic. **07**
