

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- VIth SEMESTER–EXAMINATION – MAY- 2012****Subject code: 162102****Date: 11/05/2012****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) Define steel. Classify the types of steels. Discuss briefly integrated and mini steel plants in India. **07**

(b) With the help of schematic show different routes of steelmaking. **07**

Q.2 (a) Explain briefly **07**

(i) Carbon Reaction (ii) Phosphorous Reaction (iii) Sulphur Reaction.

(b) Explain: Reaction at slag metal interface. **07**

OR

(b) List and explain raw materials and their importance in steel making. **07**

Q.3 (a) Draw and label vertical section through a LD steelmaking shop showing the relative locations of the main equipments. **07**

(b) Explain the Oxygen Lance Construction & advantages and disadvantages of single & multi nozzle lance. **07**

OR

Q.3 (a) List Design Improvements in modern EAF practice. Discuss briefly about UHP arc furnaces. **07**

(b) List the advantages and disadvantages of top and bottom blown processes. **07**

Q.4 (a) List the primary and secondary steel making processes and explain the purposes of secondary steel making. **07**

(b) Compare AOD and VOD processes of Steel Making. **07**

OR

Q.4 (a) Write a short note on Ladle furnace operation with a neat sketch. **07**

(b) Define “inclusions”. Explain what is the effect of inclusions on mechanical properties of steel? **07**

Q.5 (a) What are the sources of oxygen, nitrogen and hydrogen in steel? How are they harmful? What measures are taken to control their contents? **07**

(b) Explain the following with neat diagram. **07**

(i) Ladle Injection Metallurgy (ii) R-H degassers

OR

Q.5 (a) List the types of C.C. machines and explain any one. **07**

(b) List the defects in Con-cast products. How they can be controlled. **07**
