

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI • EXAMINATION – WINTER 2013****Subject Code: 162102****Date: 29-11-2013****Subject Name: Steel Making****Time: 02:30 pm to 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. 7

**(b)** What is a basic and oxidizing slag? Explain its role in steel making. 7

**Q.2 (a)** Explain the factors for time required to produce a “Heat” in Basic Oxygen Furnace and in an Electric Arc Furnace. 7

**(b)** Discuss various conditions for removal of Phosphorous during steel making 7

**OR**

**(b)** Describe a double slag practice in electric arc furnace steel making. 7

**Q.3 (a)** Explain “LD-AC” process of steel making. What is the use of LD-AC process slag? 7

**(b)** Explain use of single nozzle and multi nozzle lance in steel making. 7

**OR**

**Q.3 (a)** Discuss the main requirements of “Deoxidizer” in steel making. Explain the purpose and mechanism of its working. 7

**(b)** Describe metallurgical characteristics of “LD” process of steel making. 7

**Q.4 (a)** Why process control is critical in “BOF” process? Discuss how it is done? 7

**(b)** Describe “ASEA-SKF” process of steel treatment. 7

**OR**

**Q.4 (a)** Explain AOD process for stainless steel manufacturing 7

**(b)** Describe RH degassing process for steel refinement with neat sketch 7

**Q.5 (a)** Explain advantages and drawbacks of “OBM” process of steel making. 7

**(b)** Describe “Perrin process” of steel treatment and its use. 7

**OR**

**Q.5 (a)** Explain various features of Mould and Submerged entry nozzle used in continuous casting of steel. 7

**(b)** Compare ESR and VAR processes of steel treatment. 7