| Seat No.: | Enrolment No. |
|-----------|---------------|
| | |

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V • EXAMINATION - WINTER • 2014

Subject Code: 152101 Date: 26-11-2014 **Subject Name: Iron 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) Explain different variety of iron ore (In Fe%), their occurrences 07 worldwide. Why agglomeration (Nodulising) of iron ore is necessary. Define sinter **(b) 07** and pallet. **Q.2** Write about Testing & evaluation of various raw materials (iron ore, coal **07** and flux) for iron making (b) Discuss about the construction features & Mechanisms in Modern Blast **07** Furnace. OR (b) Give comparison between Bell and bell-less charging systems with **07** necessary sketch 0.3 (a) Explain difference between Pig iron, Sponge iron and Hot Briquetted 07 Iron What are the objectives of Sintering? Explain process of Sintering. **07 (b)** OR List various steps of Palletisation process. Explain in brief about the 0.3 **07** (a) mechanism of Ball Formation. **07** Give difference between Direct Reduced Iron and Hot Briquetted Iron Explain the Reaction in stack, tuyere zone, bosh and hearth of the Blast 0.4 **07** Furnace. What is Slag? How it is formed? Explain Slag-metal reactions in brief. 07 **(b) Q.4** Explain about the rate controlling steps in iron-oxide reduction process. **07** (a) What is High Top Pressure? What are the major benefits obtained with it 07 in Iron Production Process? **Q.5** Give comparison between reduction of iron oxide by H2 and CO. 07 Discuss about "Midrex" Process (a direct reduction processes) with 07 necessary flow chart. OR **Q.5** (a) Discuss in brief only, the various operational steps of blast furnace 07 (b) Discuss about Blast furnace irregularities and remedial measures **07**
