

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- Vth SEMESTER–EXAMINATION – MAY/JUNE - 2012****Subject code: 152101****Date: 01/06/2012****Subject Name: Iron making****Time: 02:30 pm – 05:00 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) Discuss physical and chemical properties of burden charged in the Blast Furnace for smooth operation. **07**

(b) Explain quality of Indian iron ore and metallurgical coal and their suitability for blast furnace. **07**

Q.2 (a) Discuss which parameters should be considered to decide the value of iron ore. **07**

(b) Explain how bonding of grains takes place and type of bonds which are formed during iron ore sintering. **07**

OR

(b) What are the types of sinters produced? How type of sinters effect basicity of slag in the blast furnace? **07**

Q.3 (a) Explain in detail mechanism of sintering of iron ore. **07**

(b) Describe briefly process of pelletisation and principle of Ball formation. **07**

OR

Q.3 (a) With particular reference to RAFT discuss processes and reactions in tuyser zone of blast furnace. **07**

(b) Explain Siliconisation of metal and mention region of blast furnace in which it takes place. **07**

Q.4 (a) Explain the cooling arrangements for Blast Furnace lining. Discuss the development of Hearth region lining in Blast Furnace over a period of time. **07**

(b) Explain in detail Blast Furnace gas cleaning arrangements. **07**

OR

Q.4 (a) Explain the process of heating air blast through Hot Blast Stove and the terms ON Gas and ON Blast. **07**

Q.4 (b) How High Top pressure in blast furnace is developed? Mention the benefits of high top pressure in blast furnace operations. **07**

Q.5 (a) Explain benefits and limitations of higher blast temperature and Oxygen enrichment of blast in the blast furnace. **07**

(b) Explain the effect of moisture on RAFT. Discuss humidification of blast and its advantages. **07**

OR

Q.5 (a) Describe rotary kiln process of sponge iron production. How are future prospects of this process for India? **07**

(b) Explain Bell-less top charging arrangement (Paul-Wurth bell-less) for blast furnace. **07**
