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B.E. / B.Tech. (Full Time) ARREAR EXAMINATIONS, APRIL / MAY 2011

MATERIALS SCIENCE AND ENGINEERING BRANCH.

THIRD SEMESTER – (REGULATIONS 2004)

ML 272 – PRIMARY PROCESSING OF IRON AND STEEL

17

Time : 3 hrs

Max Marks: 100

Answer ALL Questions

Part – A (10 x 2 = 20 Marks)

1. How are the iron ores classified based on the elements associated with it?
2. What is the function of a coke in blast furnace?
3. Write down the differences between pellets and sinters.
4. What is the effect of scaffolding in blast furnace?
5. Define Carbon Boil.
6. Name the raw materials used for steel making?
7. Differentiate between Acid and Basic Bessemer processes.
8. Why Bessemer process of steel making is not in use nowadays?
9. What is the need for deoxidation during the manufacture of steel?
10. Define the phenomena of piping during solidification of steel castings.

Part – B (5 x 16 = 80 Marks)

11. a. What is iron ore beneficiation? Explain any four ways of beneficiation of iron ores.
12. a. Describe the various components of blast furnace with neat sketch.
(OR)
b. Describe in detail the various stages of blast furnace operation.
13. a. Discuss, in detail, the physical chemistry of processes occurring inside the blast furnace at various locations with a neat sketch.
(OR)
b. Explain the following.
 - i.) Carbon boil (6)
 - ii.) Desulphurisation (5)
 - iii.) Dephosphorisation (5)

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14. a. How are the Bessemer process classified based on the supply of oxygen? Explain any one method with neat diagram.

(OR)

b. Describe in detail the constructional features of Open Hearth reverberatory furnace.

15. a. Classify the Steels based on the Deoxidation Practice. Explain the different types of deoxidized steels

(OR)

b. How are steels manufactured by Electric arc furnace process? Explain.
