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B.E/B.Tech (Full-Time) DEGREE END SEMESTER EXAMINATIONS, NOV/DEC2013  
**MATERIALS SCIENCE AND ENGINEERING**  
FOURTH SEMSTER-REGULATION 2009

27

**ML9252 PRIMARY PROCESSING OF IRON AND STEEL**

Time: 3Hr

Max.Mark:100

Answer ALL Questions

**Part –A (10x2=20 Marks)**

1. What are ferro allays? Give examples
2. Which are the alloying elements that increase nitrogen solubility?
3. List down the recent developments in blast furnace practice
4. What are the major causes of failure in the blast furnace lining?
5. Why desulphurization is done?
6. What are the functions of slag in steel making?
7. What do you mean by lime reactivity?
8. How do inclusions multiply?
9. Compare Arc and induction furnace.
10. Distinguish between killed steel and semi killed steel.

**PART B (5x16=80)**

- 11 (i) Classify the iron ore and list out the problem in Indian iron ore (8)  
(ii) Write short notes on sintering and pelletizing of iron ore (8)
- 12a (i) Discuss the C-O and Fe-C-O equilibrium equation during blast furnace operation (16)
- OR**
- 12b (i) Explain the compositional control of metal and slag in the blast furnace. (8)  
(ii) Draw the blast furnace and mark the parts (8)
- 13a (i) Explain the physic-chemical principles of steel making process (16)
- OR**
- 13b (i) What is desphosphorisation and desulphurization and explain its kinetics (16)
- 14a (i) Explain the steel making process with open hearth furnace (8)  
(ii) What is bath agitation process and explain the benefits of them (8)
- OR**
- 14b (i) Explain the reactions in LD converter. (16)
- 15a (i) Explain the teeming practice used in ingot production (8)

(ii) What are the ingot defects and how to eliminate them? (8)

OR

15b (i) Explain different degassing techniques used in steel making process (8)

(ii) Explain the process of electroslag remelting (8)