

All the Question are
Required To be answered.
Time: 2 hours

Production Eng. &Mech.Design Dept.
First year students.
Engineering Materials I
Final Exam, Jan.2013

1- Choose the correct sentence and state why?

a - Magnetite, Dolomite & Silica are considered as an Iron ore.

b - Pig Iron or plain carbon steel may have the following composition;
0.1 % C , 0.5 % Si , 0.5 % Mn , 0.03 P and 0.03 S .

c - The removal of S is easier in the Blast furnace because it has: a reducing -
Oxidizing atmosphere?

d - Silica Bricks or Alumina Bricks are used for Bessemer converters.

e - The solubility of gases in molten steel is higher or lower as the temperature
Increases?

2- Draw a neat flow sheet for a direct reduction plant.

3 - Write shortly on each of the following:

a - The efficiency of the blast furnace.

b - Three different methods for steel degassing.

4- Illustrate the Zones of reactions in a blast furnace.

5 - Draw a figure to show the relation between temperature gradient and
Variations in gas analysis with distance from tuyeres in a blast furnace.

6 - We have in Egypt two different integrated steel plants write briefly on each
Of them to illustrate the differences between them.

مع التوفيق ،،،،،
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