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Total Number of Pages: 2

B.Tech
PEMT5407

8th Semester Regular / Back Examination 2016-17
FERROALLOYS TECHNOLOGY

BRANCH(S): METTA,MME

Time: 3 Hours

Max Marks: 70

Q.CODE: Z209

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

- Q1 Answer the following questions: (2 x 10)**
- a) Name four ferroalloys industries of India.
 - b) What are the de-dusting techniques usually adopted for the off gas system?
 - c) What is decarbonization of solid ferrochrome?
 - d) How transformer power is calculated?
 - e) Why most electric furnace used for Ferro-alloy production has sealed cover?
 - f) Distinguish between charge-chrome and ferrochrome.
 - g) How furnace resistance is adjusted in Ferro silicon production?
 - h) What are the starting materials required for the production of FeTi and FeMo?
 - i) What do you mean by deoxidation of steel?
 - j) What are the de-dusting techniques usually adopted for the off gas system?
- Q2 a) In a metallothermic reduction mention the thermodynamic basis for the selection of reductant metal. (2)**
- b) What do you mean by transformer power? How transformer power is calculated? (8)**
- Q3 a) Discuss the Physico-chemical Conditions of the process for the production of Ferrosilicon. (5)**
- b) What are the operational problems in FeSi smelting? How they are tackled? (5)**

- Q4 a)** In brief discuss the production of Ferrovandium, Mention two uses of Ferrovandium. (5)
- b)** Discuss in brief the production of low carbon Ferro-chrome. Mention two uses of Ferro-chrome. (5)
- Q5 a)** What is secondary voltage in a ferroalloy furnace? Why very high secondary voltage is not opted for the operation of ferroalloy furnace? (5)
- b)** How Electrode consumption in a ferroalloy furnace depends on tap to tap time? (5)
- Q6 a)** How self backing electrodes are prepared? Discuss its properties and uses? (5)
- b)** Discuss the characteristics of ore used in the production of Ferro-manganese? Discuss the various uses of Ferro-manganese. (5)
- Q7** Discuss the advantages of chromium ore smelting in plasma furnace. With a neat diagram explain the production of ferroalloys by plasma arc furnace. (10)
- Q8** **Write short answer on any TWO:** (5 x 2)
- a)** Graphitized electrode
- b)** Dephosphorization of Ferro-Manganese.
- c)** Lining of Ferro-alloy furnace.
- d)** Sodberg paste