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Total Number of Pages : 01

B.Tech
PCMT4303

6th Semester Back Examination 2018-19

IRON MAKING

BRANCH : METTA, MME

Time : 3 Hours

Max Marks : 70

Q.CODE : F528

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) Why hematite is preferable used for iron production rather than magnetite?
 - b) What do you mean by blast furnace productivity explain it with suitable formula?
 - c) Why sponge iron is used for making desired and best quality of steels? And what is CSR & CRI?
 - d) What is low temperature breakdown of agglomerates?
 - e) Why carbon block is chosen as refractory lining in hearth and not aluminosilicate?
 - f) What is tumbling or abrasion test of raw material in iron making and why it is very essential explain in details?
 - g) Why granulation is mandatory some times before sinter of sinter mix bed?
 - h) How much carbon is there in DRI and how it is a limitation for processing?
 - i) What is RAFT? And how it changes with season?
 - j) What is dead man's zone /inactive zones of blast furnace?
- Q2** a) Describe, in detail, the construction and operation of LD converter? (5)
b) Describe, briefly, the role of slags in Phosphorous control during steel making? (5)
- Q3** a) Describe, briefly, how solidification of liquid steel takes place in the continuous casting mould? (5)
b) Explain different variety of iron ore (In Fe%) ,their occurrences worldwide? (5)
- Q4** a) Why agglomeration (Nebulizing) of iron ore is necessary. Define sinter and pallet? (5)
b) Write about Testing & evaluation of various raw materials (iron ore, coal and flux) for iron making? (5)
- Q5** a) Discuss about the construction features & Mechanisms in Modern Blast Furnace? (5)
b) Give comparison between Bell and bell-less charging systems with necessary sketch? (5)
- Q6** Explain difference between Pig iron, Sponge iron and Hot Briquetted Iron? (10)
- Q7** What are the objectives of Sintering? Explain process of Sintering? (10)
- Q8** Write short answer on any TWO : (5 x 2)
- a) Various operational steps of blast furnace
 - b) Blast furnace irregularities and remedial measures
 - c) Direct Reduced Iron and Hot Briquetted Iron