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NPTEL

reviewer1@nptel.iitm.ac.in ▼

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Unit 2 - Iron Making Week 1

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Assignment1

The due date for submitting this assignment has passed. **Due on 2018-02-21, 00:00 IST.**

Submitted assignment

1) The most abundant iron oxide mineral in the earth's crust is ----- .

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: String) hematite

0.25 points

2) Highest temperature zone of the blast furnace is at the level of -----

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: String) tuyere

0.25 points

3) Fusion and contraction of slag and metal starts in region.

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: String) belly

0.25 points

4) Reducibility index for lump ore should be more than %. (answer in numbers, not in words)

No, the answer is incorrect.

Score: 0

Accepted Answers:

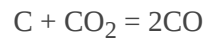
(Type: Numeric) 60

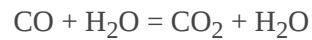
0.25 points

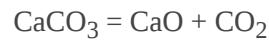
5) Boudouard Reaction is:

0.5 points









No, the answer is incorrect.

Score: 0

Accepted Answers:



6) Working volume of a blast furnace is defined as:

0.5 points

- The furnace volume from zero level burden to uppermost brick of the hearth region.
- The furnace volume from zero level burden to tuyere level.
- The furnace volume from zero level burden to the tap hole level.
- The furnace volume from tuyere level to the uppermost brick of the hearth region and bottom layer.

No, the answer is incorrect.

Score: 0

Accepted Answers:

The furnace volume from zero level burden to tuyere level.

7) For measuring softening properties of the material (iron ore, sinters or pellets) which test is recommended? **0.5 points**

- dilatometer
- BISRA
- CNRM
- none of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

CNRM

8) In the process of carbonization, coal is heated between 1000 to 1200 deg C in:

0.5 points

- presence of air
- absence of air
- presence of air and extra oxygen
- presence of oxygen only

No, the answer is incorrect.

Score: 0

Accepted Answers:

absence of air

9) Coal quality increases in the following order:

0.5 points

- Anthracite-->Bituminous-->Lignite-->Peat
- Anthracite-->Lignite-->Bituminous-->Peat

- Peat-->Lignite-->Anthracite-->Bituminous
- Peat-->Lignite-->Bituminous-->Anthracite

No, the answer is incorrect.

Score: 0

Accepted Answers:

Peat-->Lignite-->Bituminous-->Anthracite

10) Which of the following reduces the iron oxide in a blast furnace?

0.5 points

- N₂ gas
- O₂ gas
- CO gas
- Flux added to the blast furnace

No, the answer is incorrect.

Score: 0

Accepted Answers:

CO gas

11) The order of iron ore reduction in the blast furnace is:

0.5 points

- Wustite-->Magnetite-->Hematite-->Molten iron
- Magnetite-->Hematite-->Wustite-->Molten iron
- Hematite-->Magnetite-->Wustite-->Molten iron
- Hematite-->Wustite-->Magnetite-->Molten iron

No, the answer is incorrect.

Score: 0

Accepted Answers:

Hematite-->Magnetite-->Wustite-->Molten iron

12) An iron blast furnace in steady state produced 8000 tons of pig iron per day. The analysis of the pig iron was 92.7% Fe, 4% C, 2% Si, 0.9% P, 0.4% Mn. The iron ore charged into the furnace contained 78% Fe₂O₃, 8.4% SiO₂, 5% Al₂O₃, 5.1% H₂O, 1.8% MnO, and 1.7% P₂O₅. The coke used contained 85% C, 11% SiO₂, 3% Al₂O₃ and 1% FeS. The limestone flux was 98% CaCO₃ and 2% SiO₂. The input rates of coke and limestone were 6000 and 4000 tons per day, respectively. Furthermore, 97.9% of all the iron entering the furnace was accounted for pig iron. Determine:

1. The input rate of ore,
2. The output rate of the slag.

- 13800tpd, 5150tpd
- 12000tpd, 3800tpd
- 11000tpd, 4840tpd
- 13800tpd, 2000tpd

No, the answer is incorrect.

Score: 0

Accepted Answers:

13800tpd, 5150tpd

13) The iron ore feed to the blast furnace is consisted of 70 % hematite and 30 % magnetite. If the output of blast furnace is 1500 tons of iron per day then how many metric tons of hematite and magnetite approximately would be required?

1.5 points

- 1200 Hematite and 622 Magnetite
- 622 Hematite and 1200 Magnetite
- 1508 Hematite and 320 Magnetite
- 1508 Hematite and 622 Magnetite

No, the answer is incorrect.

Score: 0

Accepted Answers:

1508 Hematite and 622 Magnetite

14) State whether true or false:

The refractories used in the stack region should have high abrasion resistance property.

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: String) true

0.25 points

15) State whether true or false:

Carbon/graphite blocks are used for construction of upper stack region.

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: String) false

0.25 points

16) State whether true or false:

Super duty fire clay is used for construction in the hearth region.

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: String) false

0.25 points

17) State whether true or false:

The main function of bustle pipe is to maintain the correct pressure and correct flow rate in all the tuyeres.

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: String) true

0.25 points

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