

Metals

Questions
Q1 - 25 July - Shift 1

The compound(s) that is(are) removed as slag during the extraction of copper is :

- (1) CaO (2) FeO
(3) Al₂O₃ (4) ZnO
(5) NiO

Choose the correct answer from the options given below :

- (A) (3) (4) Only (B) (1), (2), (5) Only
(C) (1), (2) Only (D) (2) Only

Space for your notes:

Q2 - 25 July - Shift 2

Given below are two statements.

Statement I : Pig iron is obtained by heating cast iron with scrap iron.

Statement II: Pig iron has a relatively lower carbon content than that of cast iron. In the light of the above statements, choose the correct answer from the options given below.

- (A) Both Statement I and Statement II are correct.
(B) Both Statement I and Statement II are not correct.
(C) Statement I is correct but Statement II is not correct
(D) Statement I is not correct but Statement II is correct.

Space for your notes:

Q3 - 26 July - Shift 1

Metals

Refining using liquation method is the most suitable for metals with :

- (A) Low melting point
- (B) High boiling point
- (C) High electrical conductivity
- (D) Less tendency to be soluble in melts than impurities

Space for your notes:

Q4 - 26 July - Shift 2

The metal that is not extracted from its sulphide ore is :

- (A) Aluminium
- (B) Iron
- (C) Lead
- (D) Zinc

Space for your notes:

Q5 - 27 July - Shift 1

Which of the following methods are not used to refine any metal?

- (A) Liquation
- (B) Calcination
- (C) Electrolysis
- (D) Leaching
- (E) Distillation

Space for your notes:

Choose the **correct** answer from the options given below:

- (A) B and D only
- (B) A, B, D and E only
- (C) B, D and E only
- (D) A, C and E only

Q6 - 27 July - Shift 2

Metals

Among the following ores Bauxite, Siderite, Cuprite, Calamine, Haematite, Kaolinite, Malachite, Magnetite, Sphalerite, Limonite, Cryolite, the number of principal ores of iron is _____.

Space for your notes:

Q7 - 28 July - Shift 1

Which of the reaction is suitable for concentrating ore by leaching process ?

Space for your notes:

- (A) $2\text{Cu}_2\text{S} + 3\text{O}_2 \rightarrow 2\text{Cu}_2\text{O} + 2\text{SO}_2$
(B) $\text{Fe}_3\text{O}_4 + \text{CO} \rightarrow 3\text{FeO} + \text{CO}_2$
(C) $\text{Al}_2\text{O}_3 + 2\text{NaOH} + 3\text{H}_2\text{O} \rightarrow 2\text{Na}[\text{Al}(\text{OH})_4]$
(D) $\text{Al}_2\text{O}_3 + 6\text{Mg} \rightarrow 6\text{MgO} + 4\text{Al}$

Q8 - 29 July - Shift 1

In metallurgy the term "gangue" is used for:

Space for your notes:

- (A) Contamination of undesired earthy materials.
(B) Contamination of metals, other than desired metal
(C) Minerals which are naturally occurring in pure form
(D) Magnetic impurities in an ore.

Q9 - 29 July - Shift 2

Metals

In liquation process used for tin (Sn), the metal :

Space for your notes:

- (A) is reacted with acid
- (B) is dissolved in water
- (C) is brought to molten form which is made to flow on a slope
- (D) is fused with NaOH.

Metals

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Questions

Answer Key

Q1 (D)

Q2 (B)

Q3 (A)

Q4 (A)

Q5 (A)

Q6 (4)

Q7 (C)

Q8 (A)

Q9 (C)

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Metals

Hints and Solutions

Q1 (D)



Q2 (B)

Statement –I is incorrect because cast iron is obtained by heating pig iron with scrap iron

Statement–II is also incorrect because pig iron has more carbon content (~4%) than cast iron (~3%)

Q3 (A)

Liquation is used to purify metals having lower melting point than impurities present in them.

Q4 (A)

Al is extracted from $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ i.e., Bauxite ore

Q5 (A)

Calcination and leaching are the methods of concentration of ore and not that of refining.

Q6 (4)

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Metals

Bauxite — $\text{AlO}_x(\text{OH})_{3-2x}$ (where $0 < x < 1$)

✓ Siderite — FeCO_3

Cuprite — Cu_2O

Calamine — ZnCO_3

✓ Haematite — Fe_2O_3

Kaolinite — $\text{Al}_2(\text{OH})_4\text{Si}_2\text{O}_5$

Malachite — $\text{CuCO}_3 \cdot \text{Cu}(\text{OH})_2$

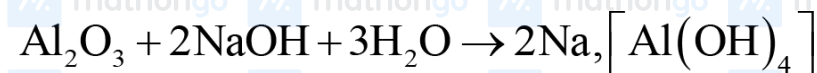
✓ Magnetite — Fe_3O_4

Sphalerite — ZnS

✓ Limonite — $\text{Fe}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$

Cryolite — Na_3AlF_6

Q7 (C)



Leaching.

Q8 (A)

Earthy and undesired materials present in the ore,

other than the desired metal, is known as gangue.

Q9 (C)

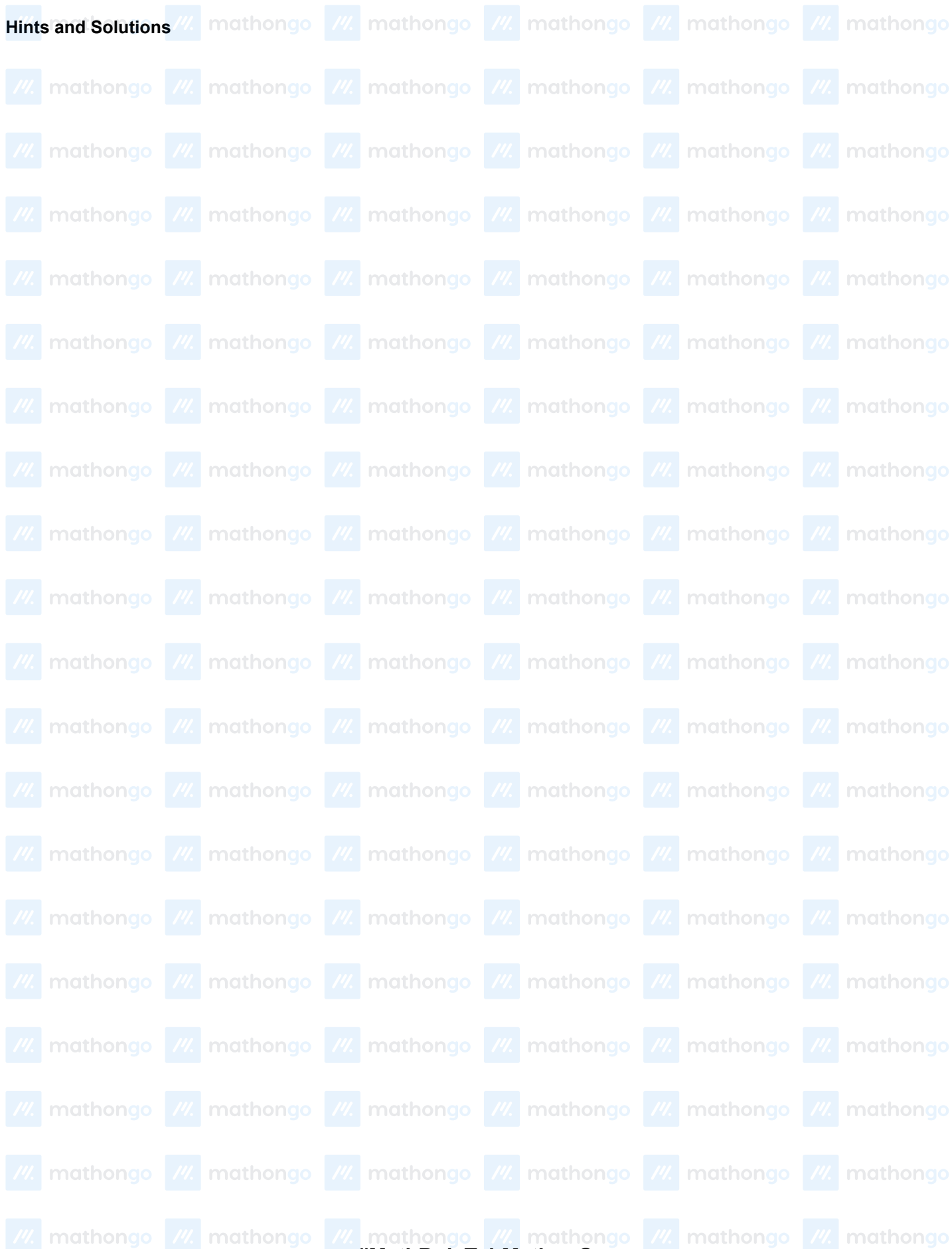
Liquation process is used for metal having low melting point such as tin in which they are heated and brought to molten state and made to flow down the slope while impurities with higher melting point left on the top.

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Hints and Solutions



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