

10. Occurrence and Extraction of Metals

1. The most abundant metal in the Earth's crust is

- A aluminium.
- B copper.
- C iron.
- D mercury.

2. Which of the following metals is used to make overhead power cables?

- A Aluminium
- B Lithium
- C Tungsten
- D Zinc

3. Which of the following combinations concerning the use of metal is correct?

	<u>Metal</u>	<u>Use</u>
A	Copper	making electric wires
B	Iron	coating for other metal
C	Lead	making food cans
D	Magnesium	making water pipes

4. Which of the following combinations concerning the use of metal is correct?

	<u>Metal</u>	<u>Use</u>
A	Cadmium	making rechargeable cells
B	Copper	making fuses in electric plugs
C	Titanium	making light bulb filaments
D	Zinc	making food cans

5. Which of the following combinations concerning the use of metal is INCORRECT?

	<u>Metal</u>	<u>Use</u>
A	Aluminium	making aeroplanes
B	Iron	making electric wires
C	Lithium	making dry cells
D	Titanium	making spectacles

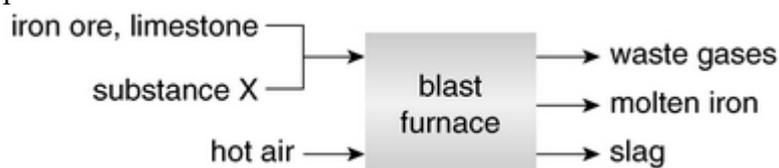
6. Which of the following statements concerning tin is correct?

- A It has a high tensile strength.
- B It has a low density.
- C It is present in solder.
- D It is poisonous.

7. Which of the following statements concerning iron is INCORRECT?
- A Iron has a high tensile strength.
 - B Iron can resist corrosion.
 - C Used iron articles are widely recycled.
 - D Iron can be used to make window frames.
8. Which of the following statements concerning aluminium are correct?
- (1) It has a low density.
 - (2) It can resist corrosion.
 - (3) It is a good conductor of electricity.
- A (1) and (2) only
 - B (1) and (3) only
 - C (2) and (3) only
 - D (1), (2) and (3)
9. Aluminium is used to make foils used in food packaging because
- (1) it is impermeable to gases.
 - (2) it is non-poisonous.
 - (3) it is the most abundant metallic element in the Earth's crust.
- Which of the above statements are correct?
- A (1) and (2) only
 - B (1) and (3) only
 - C (2) and (3) only
 - D (1), (2) and (3)
10. Brass, an alloy of copper and zinc, is commonly used for making ornaments because
- (1) it has an attractive appearance.
 - (2) it can resist corrosion.
 - (3) its melting point is lower than that of copper.
- Which of the above statements are correct?
- A (1) and (2) only
 - B (1) and (3) only
 - C (2) and (3) only
 - D (1), (2) and (3)
11. Titanium is used in making supersonic aircraft bodies. Which of the following are reasons of using titanium for making aircraft bodies?
- (1) It is cheap.
 - (2) It is light but strong.
 - (3) It is very corrosion resistant.
- A (1) and (2) only
 - B (1) and (3) only
 - C (2) and (3) only
 - D (1), (2) and (3)

12. Which of the following statements concerning zinc is / are correct?
- (1) It is used to make dry cells.
 - (2) It is present in bronze.
 - (3) It is the third most abundant metallic element in the Earth's crust.
- A (1) only
 B (2) only
 C (1) and (3) only
 D (2) and (3) only
13. In cinnabar, mercury exists mainly as a
- A carbonate.
 B chloride.
 C sulphate.
 D sulphide.
14. Which of the following combinations is correct?
- | | <u>Ore</u> | <u>Main metallic compound in the ore</u> |
|---|---------------|--|
| A | Carnallite | sodium oxide |
| B | Copper pyrite | copper(II) iron(II) sulphide |
| C | Haematite | iron(III) carbonate |
| D | Magnesite | magnesium chloride |
15. Which of the following methods is most suitable for extracting sodium from sodium chloride?
- A Heating sodium chloride with carbon
 B Heating sodium chloride in air
 C Electrolysis of molten sodium chloride
 D Electrolysis of sodium chloride solution
16. Which of the following metal oxides CANNOT be reduced to form metal when heated with carbon?
- A Copper(II) oxide
 B Iron(III) oxide
 C Zinc oxide
 D Magnesium oxide
17. Which of the following methods can be used to extract iron from iron(III) oxide?
- A Heating iron(III) oxide in air
 B Heating iron(III) oxide with carbon at about 600°C
 C Heating iron(III) oxide with carbon at about 1 000°C
 D Mixing iron(III) oxide with carbon monoxide at room temperature
18. Which of the following compounds does NOT undergo a chemical change upon heating?
- A Iron(II) sulphide
 B Mercury(II) sulphide
 C Silver oxide
 D Sodium oxide

19. Directions: Questions 19 and 20 refer to the diagram which shows substances used in a blast furnace to produce iron.



What is substance X?

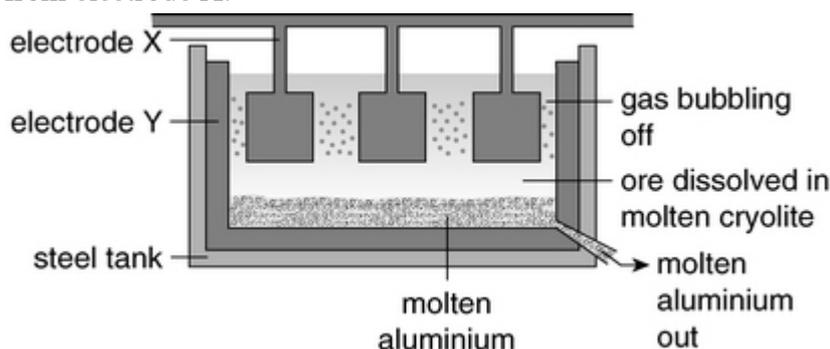
- A Calcium oxide
 - B Chromium
 - C Coke
 - D Sulphur
20. Which of the following substances would react with the iron(III) oxide in the furnace to produce iron?
- A Carbon dioxide
 - B Carbon monoxide
 - C Hot air
 - D Oxygen

21. Which of the following metals can be extracted from their oxides by heating with coke?

- (1) Calcium
- (2) Iron
- (3) Zinc

- A (1) and (2) only
- B (1) and (3) only
- C (2) and (3) only
- D (1), (2) and (3)

22. Consider the following electrolytic cell used to obtain aluminium from aluminium oxide. A gas bubbles off from electrode X.



Which of the following statements are correct?

- (1) The electrodes are made of graphite.
- (2) X is the positive electrode.
- (3) The aluminium ore is dissolved in molten cryolite to increase the strength of aluminium obtained.

- A (1) and (2) only
- B (1) and (3) only
- C (2) and (3) only
- D (1), (2) and (3)

23. Which of the following statements concerning magnesium is / are correct?

- (1) It exists as a sulphide in magnesite.
- (2) It can be obtained from sea water.
- (3) It can be extracted by heating its ore with carbon.

- A (1) only
- B (2) only
- C (1) and (3) only
- D (2) and (3) only

24. Which of the following statements concerning silver are correct?

- (1) It exists as sulphide in argentite.
- (2) It is present in 18-carat gold.
- (3) It can be extracted from its oxide by heating in air.

- A (1) and (2) only
- B (1) and (3) only
- C (2) and (3) only
- D (1), (2) and (3)

25. In which of the following processes would a metal be produced?

- (1) Heating magnesite with carbon
- (2) Heating mercury(II) sulphide in air
- (3) Controlled heating of copper pyrite in air

- A (1) and (2) only
- B (1) and (3) only
- C (2) and (3) only
- D (1), (2) and (3)

26. In which of the following experiments would a gas be produced?

- (1) Reacting iron(III) oxide with carbon monoxide
- (2) Heating limestone strongly
- (3) Heating lead(II) sulphide in air

- A (1) and (2) only
- B (1) and (3) only
- C (2) and (3) only
- D (1), (2) and (3)

27. Three metals, X, Y and Z were discovered in A.D.1807, B.C. 3500 and A.D. 1746 respectively. The order of increasing ease of extraction is probably

- A X, Y, Z.
- B X, Z, Y.
- C Y, X, Z.
- D Y, Z, X.

28. Which of the following metals was NOT discovered in ancient times?
- A Beryllium
 - B Copper
 - C Gold
 - D Tin
29. Which of the following statements concerning lead is correct?
- A It exists mainly as oxide in galena.
 - B It was discovered in ancient times.
 - C It has a low density.
 - D It can be extracted from its oxide by heating in air.
30. The year of discovery of a metal is closely related to
- (1) the ease of extraction from its ore.
 - (2) the thermal stability of its ore.
 - (3) its melting point.
- A (1) and (2) only
 - B (1) and (3) only
 - C (2) and (3) only
 - D (1), (2) and (3)
31. Which of the following statements concerning aluminium is / are correct?
- (1) Aluminium was used earlier than iron in the history of mankind.
 - (2) Aluminium is more abundant than iron in the Earth's crust.
 - (3) Aluminium can be extracted by the electrolysis of its molten oxide.
- A (1) only
 - B (2) only
 - C (1) and (3) only
 - D (2) and (3) only
32. Which of the following statements is correct?
- A Aluminium is the only metal that is widely recycled.
 - B The resources of iron will last for about 1000 years.
 - C Recycling helps reduce the waste disposal problem.
 - D It is economical to recycle metals because the cost of extraction is higher than the cost of recycling.
33. Which of the following materials is frequently used to replace metals for making water pipes?
- A Glass
 - B Plastic
 - C Wood
 - D Paper

34. Which of the following statements concerning the recycling of metals is INCORRECT?
- A Recycling used metals consumes less energy than extracting metals from their ores.
 - B It is difficult to sort out metals from household waste for recycling.
 - C All products made by recycled metals have bad quality.
 - D Recycling is important because metal resources are limited.

35. Which of the following are possible ways to conserve metals?

- (1) Recycle used metals.
- (2) Reduce the use of metals.
- (3) Reuse metal articles.

- A (1) and (2) only
- B (1) and (3) only
- C (2) and (3) only
- D (1), (2) and (3)

1	A	2	A	3	A	4	A	5	B
6	C	7	B	8	D	9	A	10	A
11	C	12	A	13	D	14	B	15	C
16	D	17	C	18	D	19	C	20	B
21	C	22	A	23	B	24	D	25	C
26	D	27	B	28	A	29	B	30	A
31	D	32	C	33	B	34	C	35	D