Multiple choice questions

1. Which of the following hazard warning labels should be displayed on a bottle of aqueous chlorine?

A 

B 

C 

D 

2. Which of the following hazard warning labels should be displayed on a metal cylinder containing liquefied petroleum gas?

A 

B 

C 

D 

3. Which of the following hazard warning labels should be displayed on a bottle of dilute aqueous ammonia?

A 

B 

C 

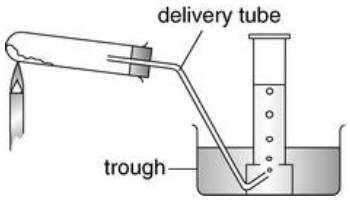
D 

4. What is the meaning of the following hazard warning label?

A Toxic
B Carcinogenic
C Corrosive
D Harmful

5. Which of the following should NOT be done in a laboratory?
   A Wash hands after experiments.
   B Keep flammable chemicals away from naked flames.
   C Close all windows when doing experiments.
   D Put the Bunsen burner on a fireproof mat when using it.

6. The following diagram shows an experimental set-up for collecting a gas produced in a certain reaction.

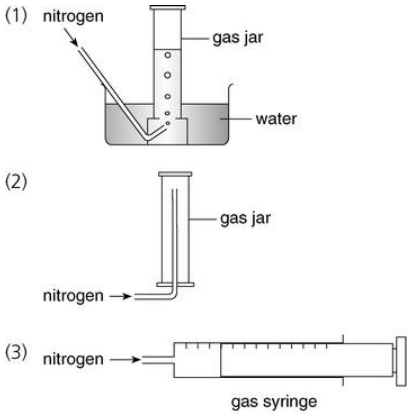


Which of the following actions can prevent 'sucking back' of water?

(1) Take the delivery tube away from water before removing the flame.
(2) Remove the flame before taking the delivery tube away from water.
(3) Decrease the amount of water in the trough.

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

7. Which of the following set-ups can be used to collect nitrogen prepared in an experiment?

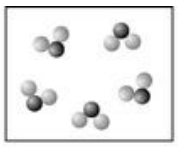


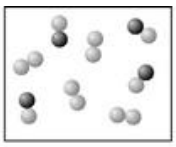
A (1) and (2) only
B (1) and (3) only
C (2) and (3) only
D (1), (2) and (3)

8. Which of the following substances is a pure substance?
   A Beer
   B Brass
   C Distilled water
   D Pond water

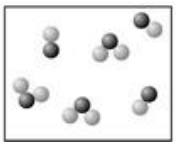
9. Which of the following substances is a compound?
   A Coal
   B Diamond
   C Dry ice
   D Soda water

10. Which of the following diagrams can represent a mixture of two elements? (In these diagrams, • and ◦ represent a nitrogen atom and an oxygen atom respectively.)

A 

B 

C 

D 

11. Which of the following substances has a sharp boiling point?
   A Liquid air
   B Molten copper
   C Red wine
   D Soft drink

12. Which of the following substances is / are element(s)?
    (1) Ammonia
    (2) Argon
    (3) Silver
    A (1) only
    B (2) only
    C (1) and (3) only
    D (2) and (3) only

13. Which of the following statements concerning oxygen is / are correct?
    (1) It is flammable.
    (2) It supports combustion.
    (3) It can relight a burning splint.
    A (1) only
    B (2) only
    C (1) and (3) only
    D (2) and (3) only

14. Which of the following statements concerning sea water is / are correct?
    (1) Sea water is a mixture.
    (2) Sodium chloride in it is a solvent.
    (3) It has a sharp boiling point.
    A (1) only
    B (2) only
    C (1) and (3) only
    D (2) and (3) only

15. Which of the following substances is NOT an element?
    A Diamond
    B Glucose
    C Oxygen
    D Sodium

16. Which of the following elements is a metalloid?
    A S
    B Ne
    C Br
    D Si

17. Which of the following elements does NOT conduct electricity?
    A Bromine
    B Graphite
    C Mercury
    D Gold

18. Which of the following elements is the *best* conductor of heat?
    A Magnesium
    B Hydrogen
    C Nitrogen
    D Sulphur

19. Atoms of the same element must have
    A the same number of neutrons.
    B the same number of electrons.
    C the same number of protons and neutrons.
    D different number of neutrons.

Assertion-reason questions

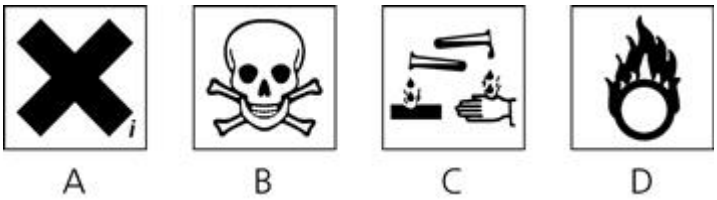
Directions: Select one option from A to D according to the following table:

A Both statements are true and the 2nd statement is a correct explanation of the 1st statement.
B Both statements are true but the 2nd statement is NOT a correct explanation of the 1st statement.
C The 1st statement is false while the 2nd statement is true.
D Both statements are false.

	1st statement	2nd statement
1.	Oxygen is a compound.	Oxygen cannot be broken down into anything simpler by physical methods.
2.	Hydrogen is an element.	Hydrogen can react with other substances to form new compounds.
3.	Air is a compound.	Air contains different gases.
4.	Burning fireworks involves a chemical change.	New substances are formed in the burning process.
5.	Heating water involves a chemical change.	Heating water produces water vapour.
6.	Sulphur is a non-metal.	Sulphur is a solid at room temperature and pressure.

Structured questions

1. a) Some hazard warning labels are shown below:



A student used concentrated sodium hydroxide solution in an experiment.

i) Which of the hazard warning labels should appear on a bottle of concentrated sodium hydroxide solution? (1 mark)

ii) State ONE safety precaution the student should take. (1 mark)

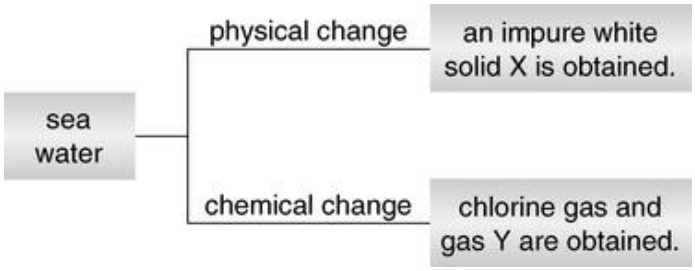
b) Ether has a very low boiling point and needs to be kept away from naked flames. Draw a hazard warning label that should appear on a bottle of ether. (1 mark)

c) The diagram below shows a student heating a mixture of solids to prepare ammonia gas. He is trying to detect the smell of ammonia.

State TWO mistakes of the student and suggest proper actions that should be taken. (4 marks)

	State the mistake	Suggest a proper action
Mistake 1		
Mistake 2		

2. Consider the following flowchart.



a) i) Name the physical change shown above. (1 mark)

ii) What might solid X be? (1 mark)

iii) Suggest ONE use of solid X. (1 mark)

iv) Name a process for obtaining purer solid X from sea water. (1 mark)

b) i) Name the chemical change shown above. (1 mark)

ii) Draw a labelled diagram of the experimental set-up for conducting the above chemical change in the laboratory. (3 marks)

c) i) Suggest what gas Y might be. (1 mark)

ii) Suggest a test to identify gas Y. (2 marks)

d) State ONE use of chlorine gas and gas Y respectively. (2 marks)