Summary Quiz (Planet Earth)

Section A: Multiple-choice questions

1. Which of the following hazard warning labels should be displayed on a gas jar of hydrogen?

(1) 

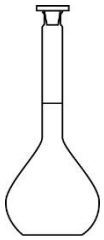
(2) 

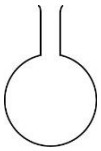
(3) 

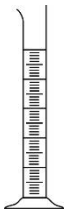
A. (1) only
B. (2) only
C. (1) and (3) only
D. (2) and (3) only

2. Which of the following pieces of apparatus can be strongly heated in laboratory?

A 

B. 

C. 

D. 

3. Which of the following statements about nitrogen and oxygen is INCORRECT?
   A. They are both gases at room conditions.
   B. They are both elements.
   C. They can be separated out from air by fractional distillation.
   D. They have the same chemical properties.

4. Which of the following is a chemical property of oxygen?
   A. It is colourless.
   B. It is the most abundant element on Earth.
   C. It freezes at 0°C.
   D. It relights a glowing splint.

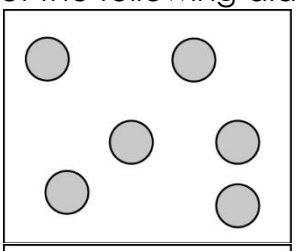
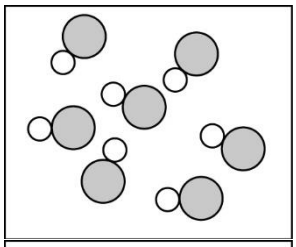
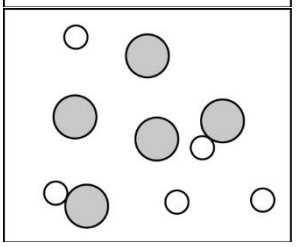
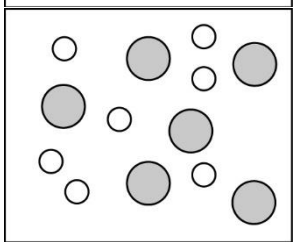
5. Sea water contains chlorides, bromides and sulphates and so sea water is
   A. an element.
   B. a compound.
   C. a mixture.
   D. a pure substance.

6. Which of the following methods can be used to remove coarse sand from sea water?
   A. Crystallization
   B. Filtration
   C. Distillation
   D. Evaporation

7. Which of the following methods can be used to distinguish between calcium carbonate and calcium chloride?
   (1) Add dilute hydrochloric acid to the samples
   (2) Perform silver nitrate test
   (3) Perform flame test
   A. (1) and (2) only
   B. (1) and (3) only
   C. (2) and (3) only
   D. (1), (2) and (3)

8. After dipping a piece of platinum wire in a sample of sea water, the wire is heated in a non-luminous flame. It is observed that the flame colour is
   A. bluish green.
   B. brick-red.
   C. lilac.
   D. golden yellow.

9. When marble is heated, a gas evolves. Which of the following statements about the gas is correct?
   A. The gas is yellow in colour.
   B. The gas relights a glowing splint.
   C. The gas turns limewater milky.
   D. The gas is toxic.

10. Which of the following diagrams represents a mixture of two elements?
   A. 
   B. 
   C. 
   D. 

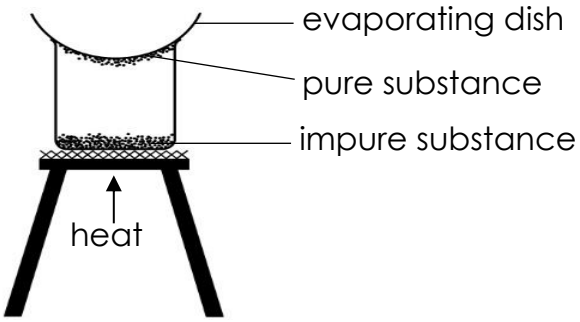
11. Water can be separated from a bottle of ink by
   A. crystallization.
   B. distillation.
   C. filtration.
   D. sublimation.

12. Which of the following statements about calcium hydroxide is INCORRECT?
   A. It is commonly known as quicklime.
   B. It is slightly soluble in water.
   C. It gives a brick-red flame in the flame test.
   D. It can be prepared by adding water to calcium oxide.

Section B: Structured questions

1. Suggest a method to show that filtered sea water contains
   (a) sodium,
   (b) chloride,
   (c) 2.9% by mass of salts.

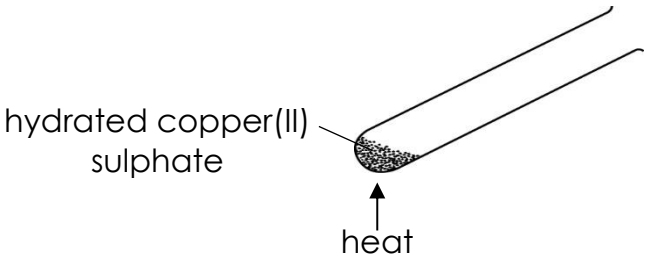
2. Refer to the set-up below:



   (a) Suggest ONE substance which can be purified by the set-up shown above.

   (b) Name the above process.

3. Some hydrated copper(II) sulphate is heated as shown below. When hydrated copper(II) sulphate is heated, it changes to anhydrous copper(II) sulphate.



   (a) What would be observed in the test tube?

   (b) What would be observed if a piece of cobalt(II) chloride paper is put at the mouth of the test tube?

   (c) Explain whether the heating of hydrated copper(II) sulphate a physical change or a chemical change.

Suggested Answer

Section A

1.	B	7.	A
2.	C	8.	D
3.	D	9.	C
4.	D	10.	D
5.	C	11.	B
6.	B	12.	A

Section B

1. (a) Perform flame test.
A golden yellow flame is observed.

(b) Perform silver nitrate test.
A white precipitate forms.

(c) Weigh a sample of sea water accurately (m_1).

Heat the sea water to dryness in an evaporating dish and weigh the residue accurately (m_2).

Calculate the percentage by mass of salts in sea water: $(m_2/m_1) \times 100\%$

2. (a) Iodine (accept other reasonable answers)

(b) Sublimation

3. (a) The solid changes from blue to white.

(b) The paper changes from blue to pink.

(c) It is a chemical change
because a new substance (anhydrous copper(II) sulphate) forms.