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S3 – Basic Chemistry - Quiz

Q1. Can an element be broken down into a simpler substance?

a. True b. False

Q2. What is compound?

a. A compound is a substance made up of one kind of mixture.
b. A compound is a substance made up of one kind of element.
c. A compound is a substance made up of two or more elements.

Q3. What is a mixture?

a. A mixture is two or more substances combined.
b. A mixture is two or more elements combined.
c. A mixture is two or more atoms combined.

Q4. Which of the following is a compound?

a. Gold b. Alcohol c. Helium d. Sugar water

Q5. Which of the following is an element?

a. Sugar b. Copper c. Salt d. Water

Q6. Are there more compounds or more elements?

a. There are more compounds
b. There are more elements

Q7. Which of the following is not a mixture?

a. Cereal and milk b.Dal Chawal c. Water d. Fruit salad

Q8. Can compounds be separated?

a. Yes b. No

Q9. All matter is made of

a. Energy b. Atoms c. Air

Q10. Element is a

a. Pure substance b. Compound c. Mixture d. Molecule

Q11. Which of the following is not a compound?

a. HCl b. Cl c. NaCl d. $C O_2$

Q12. Which one only has one type of atom in it.

a. Element b. Compound

Q13. Is salt (NaCl) a compound or a element

a. Compound b. Element

Q14. Which of the following represents an element?

a. H_2O b. H_2 c. NaCl d. $CaCO_3$

Q15. Carbon dioxide is a compound.

a. True b. False

Q16. Hydrogen is a compound.

a. True b. False

Q17. One carbon atom and one oxygen atom are combined together to form a molecule of

A. Oxygen B. Water C. Carbon Dioxide D. Carbon Monoxide

Q18. Molecules which contain same type of atoms are molecules or

A. Elements B. Compounds C. Mixtures D. All of them

Q19. Molecules which consists of fixed number of different types of atoms which are chemically combined together, are

A. Elements B. Compounds C. Mixtures D. Liquids

Q20. O is the correct chemical symbol for Oxygen.

A. True B. False

Q21. Si is the chemical symbol for the element:

1. Silver 2. Sodium 3. Sulfur 4. Silicon

Q22. What is the correct chemical symbol for the element for the element Sulfur?

1. Su 2. Si 3. S 4. Sn

Q23. Ca is the chemical symbol for the element:

1. Californium 2. Carbon 3. Mercury 4. Calcium

Q24. What is the correct chemical symbol for the element Hydrogen?

1. He 2. Hy 3. H 4. K

Q25. Nitrogen's chemical symbol is Ni.

1. True 2. False

Q26. What is the correct chemical symbol for the element Gold?

1. G 2. Ag 3. Au 4. Ti

Q27. Beryllium's chemical symbol is Be.

1. True 2. False

Q28. A salad would be considered which type of mixture?

1. Heterogeneous 2. Homogeneous 3. Element 4. Compound

Q29. What is the Periodic Table?

1. A group of periods
2. A table that is not often used
3. An arrangement of elements based on atomic number
4. A list of elements not yet discovered Mendeleev

Q30. In what state of matter do molecules bounce off one another rapidly and act freely?

1. Solid 2. Liquid 3. Gas 4. Air

Q31. Ag is the chemical symbol for the element:

1. Sodium 2. Silver 3. Silicon 4. Argon

Q32. A substance in which two or more elements are chemically combined is called a(n)

1. Substance 2. Element 3. Compound 4. Mixture

Q33. What is a pure substance that cannot be broken down into other substances by chemical or physical means?

1. Element 2. Substance 3. Mixture 4. Compound

Q34. Two or more substances that are mixed together, but do not chemically combine, form a(n)

1. Substance 2. Element 3. Mixture 4. Compound

Q35. If the formula for Hydrogen is H_2 . Then H_2 is .....

1. Molecule
2. Atom
3. Electron

Ans. **Molecule** - Two atoms of Hydrogen combines to form one molecule of Hydrogen represented as H2

Q36. Which one of these is monoatomic gas?

1. Hydrogen
2. Helium
3. Ozone
4. Oxygen

Ans. **Helium -** Monoatomic gas has one one atom . These are He (Helium) , Ar (Argon), Kr(Krypton) and Xe(Xenon). Ozone is triatomic gas because of presence of 3 atoms to form molecule of Ozone i.e O3

Q37. One atom of Chlorine combines with one atom of Hydrogen to form HCl. Similarly, one atom of Nitrogen combines with three atoms of Hydrogen to form Ammonia represented as NH3. Whose valency is more - Nitrogen or Chlorine ???

1. Nitrogen
2. Chlorine

Ans. **Nitrogen -** The valency is the capacity of an atom to combine with other atoms of different elements.

Q38. If an element A has valency Y and element B has valency X , in that case if both element combines, the formula for the resultant element will be ...

1. AxBy
2. AyBx

Q39. Which one of the following is variable valency ?

1. Iron
2. Chlorine
3. Nitrogen
4. Sodium

Q40. Which of the following is symbol of gold?

1. Au
2. Pb
3. Ag
4. Gd

Q41. The short form of the name of an element is

1. Atom 2. Molecule 3. Symbol 4. None of these

Q42. The valencies of two elements in a compound are _____ to obtain the formula.

1. Subtracted 2. Added 3. Retained 4. Exchanged

Q43. Ozone is a _____ gas.

1. Monoatomic 2. Diatomic 3. Triatomic 4. None of these

Q44. What is the valency of Cl in $CaCl_2$?

1. 1 2. 2 3. 3 4. 4

Q45. Write **True or False** and correct the false statements.

A) Nitrogen is bivalent
B) The symbol of iron is I.
C) The valency of oxygen is 2.
D) Atoms of an element form a compound.

Ans. A) False - Trivalent B) False - Fe

C) True D) False - Atoms of an element form a molecule.

Q46. Which of the following is a physical change?

A) Rusting of iron
B) Combustion of magnesium ribbon
C) Burning of candle
D) Melting of wax

Q47. Which of the following is a chemical change?

A) Twinkling of stars
B) Cooking of vegetables
C) Cutting of fruits
D) Boiling of water

Q48. Fill in the blanks in the following statements using the words given in the box.

Rusted, colorful, substance, chemical, physical, Reversible, iron oxide, object

A) Making sugar solution is a _____ change.
B) A physical change is generally _____.
C) Grinding of wheat grain changes its size. It is a _____ change.
D) Iron benches kept in lawns and gardens get _____. It is a _____ change because a new _____ is formed.

Q49. Classify the following processes into physical or chemical changes:

A) Beating of aluminium metal to make aluminium foil.
B) Digestion of food.
C) Cutting of a log of wood into pieces.
D) Burning of crackers.

Ans. (i) and (iii) are physical changes

(ii) and (iv) are chemical changes

Q50. Write word equations for two chemical reactions with the help of materials given in the box.

Air, copper sulphate, iron, vinegar, iron oxide, carbon dioxide, Iron sulphate, copper, lime water, water

Ans. (1) Iron + Air + Water → Iron Oxide

(2) Copper sulphate + Iron → Iron sulphate + Copper

Q51. Explain the following:

A) Lime water turns milky on passing carbon dioxide gas in to it.
B) Bubbles are produced when acetic acid is added to a solution of sodium hydrogencarbonate.

Ans. (a) When you pass carbon dioxide through this solution, the two compounds carbon dioxide (CO_2) and calcium hydroxide ($CaOH_2$) will react to form white and insoluble calcium carbonate which precipitates out of the solution. The reaction is as follows:

$Ca(OH)_2aq + CO_2(g) \rightarrow CaCO_3(s)\downarrow + H_2O$

(b) Sodium hydrogencarbonate on reaction with acetic acid releases carbon dioxide gas.
$NaHCO_3 + CH_3COOH \rightarrow CH_3COONa + H_2O + CO_2$

Test for carbon dioxide:
The presence of carbon dioxide can be tested by bringing a burning splinter near the mouth of the cylinder containing carbon dioxide – it gets extinguished.

Q52. If you leave a piece of iron in the open for a few days, it acquires a film of brownish substance, called rust.

A) Do you think rust is different from iron?
B) Can you change rust back into iron by some simple method?
C) Do you think formation of rust from iron is a chemical change?
D) Give two other examples of a similar type of change.

Ans. (a) Yes, rust is quite different from iron.

(b) No.

(c) Yes, it is a chemical change.

(d) (i) Setting of curd from milk. (ii) Burning of magnesium ribbon to form magnesium oxide.

Q53. A student took a solution of copper sulphate in a beaker and put a clean iron nail into it and left it for about an hour.

A) What changes do you expect?
B) Are these changes chemical in nature?
C) Write a word equation for the chemical change, if any.

Ans. (A) (i) Colour of the solution in the beaker changes from blue to green.

(ii) A brown coloured deposit is found on the surface of the iron nail.

(B) The changes are chemical in nature as new substances, iron sulphate (green) and copper (brown) are formed.

(c) Copper sulphate (blue) + Iron → Iron Sulphate (green) + Copper (brown)

Answer:

1. **b**
2. **c**
3. **a**
4. **b**
5. **b**
6. **a**
7. **c**
8. **a**
9. **atoms**
10. **pure substance**
11. **Cl**
12. **Element**
13. **Compound**
14. **H_2**
15. **True**
16. **False**
17. **D**
18. **A**
19. **B**
20. **False**
21. **Silicon**
22. **S**
23. **Calcium**
24. **H**
25. **False**
26. **Au**
27. **True**
28. **A**
29. **C**
30. **C**
31. **B**
32. **Compound**
33. **Element**
34. **Mixture**
35. **Molecule** - Two atoms of Hydrogen combines to form one molecule of Hydrogen represented as H2
36. **Helium -** Monoatomic gas has one one atom . These are He (Helium) , Ar (Argon), Kr(Krypton) and Xe(Xenon). Ozone is triatomic gas because of presence of 3 atoms to form molecule of Ozone i.e O3
37. **Nitrogen -** The valency is the capacity of an atom to combine with other atoms of different elements.
38. **AxBy**
39. **Iron**
40. **Au**
41. **Symbol**
42. **Exchanged**
43. **Triatomic**

44. 1

45. A) False - Trivalent **B) False - Fe**
C) True **D) False - Atoms of an element form a molecule.**

46. d

47. b

48. A) physical **B) reversible** **C) physical**

D) rusted, chemical, substance.

49. (i) and (iii) are physical changes

(ii) and (iv) are chemical changes

50. (1) Iron + Air + Water → Iron Oxide

(2) Copper sulphate + Iron → Iron sulphate + Copper

51. (a) This is because white coloured insoluble substance called calcium carbonate is formed.

(b) Carbon dioxide is evolved due to the chemical reaction between acetic acid and sodium hydrogencarbonate.

52. (a) Yes, rust is quite different from iron.

(b) No.

(c) Yes, it is a chemical change.

(d) (i) Setting of curd from milk.

(ii) Burning of magnesium ribbon to form magnesium oxide.

53. (A) (i) Colour of the solution in the beaker changes from blue to green.

(ii) A brown coloured deposit is found on the surface of the iron nail.

(B) The changes are chemical in nature as new substances, iron sulphate (green) and copper (brown) are formed.

(c) Copper sulphate (blue) + Iron → Iron Sulphate (green) + Copper (brown)