AECS Mysore

Worksheet: Class 10

Chapter 1 – Chemical Reactions and Equations

Section A: Multiple Choice Questions

1. Which of the following is a chemical change?

   (a) Melting of ice (b) Boiling of water (c) Rusting of iron (d) Breaking of glass

2. The correct balanced equation for the reaction of hydrogen and oxygen to form water is:

   (a) $H_2 + O_2 \rightarrow H_2O$ (b) $2H_2 + O_2 \rightarrow 2H_2O$ (c) $H_2 + O_2 \rightarrow 2H_2O$ (d) $2H_2 + 2O_2 \rightarrow 2H_2O$

3. Which one of the following reactions is an example of a combination reaction?

   (a) $CaO + H_2O \rightarrow Ca(OH)_2$ (b) $Zn + HCl \rightarrow ZnCl_2 + H_2$ (c) $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$ (d) $Cu + O_2 \rightarrow CuO$

4. The brown color of copper turns green due to the formation of:

   (a) CuO (b) $CuSO_4$ (c) $CuCO_3$ (d) $Cu(OH)_2 + CuCO_3$

5. The reaction: $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$ is an example of:

   (a) Combination reaction (b) Displacement reaction (c) Decomposition reaction (d) Double displacement reaction

6. Which of the following is not a characteristic of a chemical reaction?

   (a) Change in temperature (b) Change in state (c) Evolution of gas (d) Mixing of two substances

7. Which gas is evolved when zinc reacts with dilute HCl?

   (a) Oxygen (b) Hydrogen (c) Nitrogen (d) Carbon dioxide

8. The reaction: $2FeSO_4 \rightarrow Fe_2O_3 + SO_2 + SO_3$ is a:
   (a) Combination reaction (b) Displacement reaction (c) Decomposition reaction (d) Double displacement reaction
9. In the reaction: $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$, what happens to iron (Fe)?

(a) It is oxidized (b) It is reduced (c) It acts as a spectator ion (d) It undergoes a combination reaction

10. Which of the following reactions is used in black and white photography**?**
(a) Decomposition of silver chloride (b) Formation of silver nitrate (c) Reaction of Ag with NaCl (d) Thermal decomposition of $KClO_3$

Section B- Assertion – Reason type questions

(Each question has 2 statements – Assertion (A) and Reason (R). Choose the correct option:)

Options:
(A) Both A and R are true, and R is the correct explanation of A.
(B) Both A and R are true, but R is not the correct explanation of A.
(C) A is true, but R is false.
(D) A is false, but R is true.

11.Assertion (A): Rusting of iron is a chemical change.
Reason (R): Rusting results in the formation of a new substance, iron oxide.

12.Assertion (A): Burning of magnesium ribbon in air is an example of a combination reaction.
Reason (R): Magnesium combines with oxygen to form magnesium oxide.

13.Assertion (A): Silver articles become black after some time when exposed to air.
Reason (R): Silver reacts with carbon dioxide in the air to form silver carbonate.

14.Assertion (A): In a displacement reaction, a more reactive element displaces a less reactive element.
Reason (R): Displacement reactions involve exchange of ions between reactants.

15.Assertion (A): Photosynthesis is an example of an endothermic reaction.
Reason (R): Energy is absorbed in the form of sunlight during photosynthesis.

Section C: Fill in the blank questions

16. A chemical equation is said to be _____ when the number of atoms of each element is equal on both sides of the equation.

17. In the reaction: $2AgBr \rightarrow 2Ag + Br_2$, _____ is used to carry out the decomposition.

18. A white insoluble solid formed in a reaction is called a _____.

19. The process of depositing a layer of zinc on iron to prevent rusting is called _____.

20. A _____ reaction is one in which heat is evolved during the process.

Section D: short answer questions

21. What is a rancid food? Name a method to prevent rancidity.

22. Name the type of reaction: $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$

23. What is meant by corrosion? Give one example.

24. Why should a magnesium ribbon be cleaned before burning inair?

25. Give an example of an exothermic reaction.

Section E: Long answer questions

26. Balance the following chemical equations:
(i) $Na + H_2O \rightarrow NaOH + H_2$
(ii) $Ca + N_2 \rightarrow Ca_3N_2$
(iii) $Al + O_2 \rightarrow Al_2O_3$

27. What is a displacement reaction? Explain with a chemical equation.

28. How is a double displacement reaction different from a displacement reaction? Give examples.

29. Define thermal decomposition reaction with an example.

30. What is a redox reaction? Give an example.

ATOMIC ENERGY CENTRAL SCHOOL – MYSORE

CLASS: X

LIFE PROCESS – WORKSHEET

SESSION: 2025-26

MCQ:

Q1) In amoeba, food is digested in the:

(a) Food vacuole

(b) Mitochondria

(c) Pseudopodia

(d) Chloroplast

Correct Answer: Option (a)

Q2) In which of the following groups of organisms are food materials broken down outside the body and absorbed?

(a) Mushroom, green plants, amoeba

(b) Yeast, mushroom, bread mould

(c) Paramecium, amoeba, cuscuta

(d) Cuscuta, lice, tapeworm

Correct Answer: Option (b)

Q3) The contraction and expansion movement of the walls of the food pipe is called:

(a) Translocation

(b) Transpiration

(c) Peristaltic movement

(d) Digestion

Correct Answer: Option (c)

Q4) What are the products obtained by anaerobic respiration in plants?

(a) Lactic acid + energy

(b) Carbon dioxide + water + energy

(c) Ethanol + carbon dioxide + energy

(d) Pyruvate

Correct Answer: Option (c)

Q5) When a few drops of iodine solution are added to rice water, the solution turns blue-black in colour. This indicates that rice water contains:

(a) Fats

(b) Complex proteins

(c) Starch

(d) Simple proteins

Correct Answer: Option (c)

Q6) Which of the equations shows the correct conversion of CO2 and H2O into carbohydrates in plants?

(a)

$$6CO_2 + 6H_2O \xrightarrow[\text{Heat energy}]{\text{Chlorophyll}} C_6H_{12}O_6 + 6O_2 + 12H_2O$$

(Glucose)

(b)

$$6CO_2 + 6H_2O \xrightarrow[\text{Sunlight}]{\text{Chlorophyll}} C_6H_{12}O_6 + 6O_2 + 12H_2O$$

(Glucose)

(c)

$$6CO_2 + 12H_2O \xrightarrow[\text{Sunlight}]{\text{Chlorophyll}} C_6H_{12}O_6 + 6O_2 + 6H_2O$$

(Glucose)

(d)

$$6CO_2 + 12H_2O \xrightarrow[\text{Heat energy}]{\text{Chlorophyll}} C_6H_{12} + 6O_2 + 6H_2O$$

(Glucose)

Correct Answer: Option (c)

Q7) The respiratory pigment in human beings is:

(a) Carotene

(b) Chlorophyll

(c) Haemoglobin

(d) Mitochondria

Correct Answer: Option (c)

Q8) Which of the following is the important characteristic of Emphysema?

(a) Destruction of the alveolar wall and air sacs in the lungs are damaged

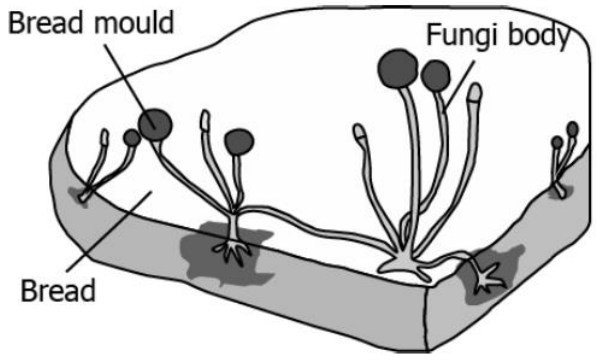
(b) Increase in the growth of the lung tissue

(c) Inflammation in the wall of the bronchi

(d) Thickening of the artery walls of the lungs

Correct Answer: Option (a)

Q9) The following image shows the bread moulds on bread:



How do these fungi obtain nutrition?

(a) By eating the bread on which it is growing

(b) By using nutrients from the bread to prepare their own food

(c) By breaking down the nutrients of bread and then absorbing them

(d) By allowing other organisms to grow on the bread and then consuming them

Correct Answer: Option (c)

Q10) The characteristic processes observed in anaerobic respiration are:

i) Presence of oxygen

ii) Release of carbon dioxide

iii) Release of energy

iv) Release of lactic acid

(a) i), ii) only

(b) i), ii), iii) only

(c) ii), iii), iv) only

(d) iv) only

Correct Answer: Option (c)

ONE MARK QUESTION:

1. Mention the raw materials required for photosynthesis
2. State the location and function of gastric glands.
3. Name the glands present in the wall of the stomach that release secretions for digestion of food.
4. What is peristaltic movement?
5. Why is nutrition necessary for the human body?
6. In the process of respiration, state the function of alveoli
7. Define translocation
8. Write three types of blood vessels
9. Name the vein which brings blood to left atrium from lungs.
10. Define Transpiration.

TWO MARK QUESTION:

1. Mention any two components of blood.
2. Name four types of metabolic wastes produced by humans.
3. Name the organs that form the excretory system in human beings.
4. Name the basic filtration unit present in the kidney.
5. How is a nephron involved in the filtration of blood and formation of urine?
6. State the role played by the following in the process of digestion :
   (i) Enzyme trypsin
   (ii) Enzyme lipase
7. Explain the significance of photosynthesis.
8. Differentiate between autotrophs and heterotrophs
9. Stomata remain closed in desert plants during daytime'. How do they do photosynthesis?
10. Describe the process of nutrition in Amoeba with the help of diagram

3 MARK QUESTION:

1. What are the functions of lymph in our body?
2. How is haemoglobin associated with respiration explained?
3. What are the modes of excretion in plants?
4. What is "translocation"? Why it is essential for plants.
5. How is transpiration pull responsible for upward movement of water?

5 MARK QUESTION:

1. What is 'clotting of blood'? Write a flow chart showing major events taking place in clotting of blood?
2. With the help of a labelled diagram of human excretory system, Mention its important part and explain them.

3. (i) Draw a well labeled diagram of human digestive system
   (ii) Describe the role of following in digestion.
   a) Bile
   b) Salivary amylase
   c) HCl

4. With the help of labeled diagram, Discuss the mechanism of respiration in human beings.

5. Describe the structure and functioning of nephron.