**Chapter 5**

**Periodic Classification of Elements**

1. N, O, F cannot be classified as Dobereiner triad. Why?
2. How many vertical columns are there in modern periodic table? And what are these columns known as?
3. How it can be proved that the basic structure of modern periodic table is based on electronic configuration of atoms of element?
4. The electronic configuration of an element is 2, 8, 4. State its a) group and period in the Modern Periodic table. b) Name and write its one physical property.
5. The elements of one short periodic table are given below in order from left to right: Li, Be, B, C, O, F and Ne.
6. To which period do these element belong
7. One element of this period is missing, which is the missing element and where should it be placed?
8. Which element of this period shows catenation?
9. Place 3 elements fluorine, beryllium and nitrogen in the order of increasing electro negativity.
10. An element X (2, 8, 2) combines separately with NO3--, SO42-, PO43—ions. Write the formulae of 3 compounds so formed. To which the group of periodic table does the element X belong? Will it form covalent or ionic compound? Why?
11. An element X has a total of 31 nucleons out of which 16 are neutrons.
12. Write the electronic configuration of element X.
13. Determine the group and period of element X.
14. Give the formula of the ion formed by element X.
15. Give example of the following
16. Halogen belonging to fourth period.
17. Element of third period forming divalent positive ion.
18. Element of third period showing metalloid character.
19. Second element of oxygen family
20. Two transition elements
21. Most non-metallic element of third period.
22. An element A has same number of electrons in the first and fourth shell as well as in the second and third shell.
23. Write electronic configuration of the element.
24. State the group number and the period to which it belongs.
25. Will it form ionic or covalent with element B (2, 8, 6)?
26. What will be nature of oxides of A and B?
27. Based on group valency of elements write the molecular formula of the following compounds giving justification of each:
28. Oxide of first group elements
29. Halide of the elements of group thirteen.
30. Compound formed when an element of group 2 combines with element of group seventeen.
31. Na, Mg and Al are the elements of the 3rd periods of the Modern Periodic Table having group number 1, 2 and 13 respectively. Which one of these elements has a) highest valency b) largest atomic radius and c) maximum reactivity? Justify your answer by giving reason for each.
32. Two elements X and Y belong to 3rd period of Modern periodic table and are in group 3 and 13 respectively. Compare their following characteristics in tabular form.
33. Number of electrons in their atoms.
34. Size of their atoms
35. Their tendencies to loose electrons
36. The formula of their oxides
37. Their metallic characters
38. The formula of their chloride
39. A) How does metallic character of elements vary on moving from
40. Left to right in a period
41. Top to bottom in a group?

Explain with the help of example in each case.

1. If an element X is placed in group-14 what will be nature of bond in its chloride? Write the chemical formula of compound formed.
2. An element X has mass number =35 and number of neutrons =18. What is the atomic number of X? Write electronic configuration of X and determine its valency.
3. Consider the elements Na, Cl, Ar and answer the following questions
4. Discuss their metallic and non-metallic characters
5. Discuss the acid –base Character of their oxides.
6. a) Which 2 criteria did Mendeleev use to classify the elements in his periodic table?
7. state Mendeleev’s Periodic law
8. Why could no fixed position be given to hydrogen in Mendeleev’s period?
9. How many elements can be accommodated in each period of periodic table? What are these periods called on basis of number of elements?
10. The modern period has evolved through the early attempts of Dobereiner , Newlands and Mendeleev . List one advantage and limitation of all the three attempts.
11. Multiple choice questions
12. Number of elements present in third period of the periodic table is
13. 3 b) 8 c) 18 d) 32
14. Up to which element, the law of octaves are found applicable?
15. Oxygen b) Calcium c) Cobalt d) Potassium
16. Li , Na and K is a Dobereiner triad. The atomic mass of Li and K are 7 and 39 respectively. What is expected mass of Na?
17. 7 b) 18 c) 23 d) 39
18. Which of the following statements is not correct statement about the trends when going from left to right across the periods of periodic table?
19. The elements become less metallic in nature b) the number of valence electrons increases c) atoms lose their electrons easily d) the oxides become more acidic
20. Which among the following is the most reactive halogens?
21. F b) Cl c) Br d) I

1. Read the passage given and answer the questions

All the elements on the left side and in the middle of periodic table( except hydrogen) are metallic elements or metals. Also majority of elements are metals. The metals are separated from the non-metallic elements or non-metal by a diagonal step like line that runs from boron (B) to astatine(At). Note that hydrogen although on left side of the periodic table, is non-metal. Some non-metals are gases, some are liquids and rest are solid at room temperature. They generally differ from metals in appearance and in other physical properties. Some elements that lie along the line that separates metal from non-metals have properties that fall between those of metals and non-metals. These elements are often regarded as semi-metals of metalloids e.g. B, Si, Ge, As, Sb, Te, Po, At.

1. From the given set of metals and non –metals identify the non-metals S, Mg, Al, P, N, Na, K.
2. Which of the elements will form acidic oxide
3. Sodium ii) Magnesium iii) Aluminium iv) Sulphur
4. Which among the following is least reactive?
5. L i b) Na c) K d) Rb
6. Assertion and Reasons
7. If both assertion and reason is true and reason is the correct explanation of the assertion.
8. If both assertion and reason is true but reason is not the correct explanation of the assertion
9. If assertion is true but reason is false
10. If both assertion and reason is false
11. Assertion: Alkaline earth metals are non-metal.

Reason: Alkaline earth metals are highly electronegative elements.

1. Assertion: Li and Mg show similar properties

Reason: Both have similar atomic size.

1. Assertion: Second ionisation enthalpy is always greater than first ionisation energy.

Reason: Positive ion holds its remaining electrons very tightly.

1. Assertion: Alkali metals do not form dipositive ions.

Reason: After loss of one electrons alkali metal achieve stable configuration of noble gas.

1. Assertion: Aluminium and Bromine form Al Br3 as a stable binary compound.

Reason: Aluminium is a group 13 element while Bromine is a group 17 element.

**Chapter 6**

**Life Processes**

1. Give one word answer for the following
2. Process of utilisation of absorbed food.
3. Organism that can prepare their own food.
4. The cell organelle where photosynthesis occurs
5. Organisms that cannot prepare their own food.
6. An enzyme secreted from gastric glands in stomach that acts on proteins.
7. Why we experience heavy breathing as we climb up a mountain?
8. What criteria do we use to decide whether some thing is alive?
9. Why do fishes die when taken out of water?
10. Why is rate of breathing in aquatic organism much faster than terrestrial animal?
11. We took two green plants and kept them separately one in dark and other in sunlight. What will happen to both plants?
12. A child keeps on eating more and more of chocolates and he does not brush properly too. What would happen to his teeth if one day he screamed very badly with toothache?
13. What are end products of anaerobic respiration in muscles?
14. Is there a partition between root hair and the cell to which it is attached?
15. If human urine is allowed to stand for some time it smells of ammonia, why?
16. How does plant gets rid of excretory products?
17. Name the structural feature of small intestine responsible for absorption of food.
18. When a piece of bread is chewed slowly, it tastes sweeter after sometime, give reason.
19. Even though bile contains no enzyme, it is important for digestion, why?
20. Read the given passage and answer the question based on it

There are five animals P, Q, R, S and T. The animal P always lives in water and has gills for respiration while animal Q can live in both in water on land and respires through both lungs and moist skin. The animal R lives in soil and breathes only through skin. The animal S lives on land and breathes through spiracles and trachea while animal T lives in water and breathes through its cell membrane.

1. Which of the above mentioned animal could be Amoeba?
2. Name the type of respiration found in S.
3. Which of them could be Fish?
4. Which animal could be R and Q?
5. Name the organism having venous heart. What do you mean by venous heart? What type of circulation does it represent?
6. Write one function of each of the following
7. Xylem b) Phloem c) Aorta d) Vena cava e) Pulmonary artery
8. Enlist the difference between dark and light phase of photosynthesis.
9. Highlight the role of platelets in blood clotting
10. Draw a labelled diagram of human excretory system.
11. Differentiate between the following
12. Blood and lymph
13. Autotroph and Heterotroph
14. Aerobic and Anaerobic respiration
15. Single and double circulation
16. Breathing and respiration
17. Systole and diastole
18. Write two conducting system present in plants. How does water enters continuously in the root water conducting tissue?
19. All plants give out oxygen during day and carbon dioxide during night. Justify the statement.
20. Transpiration in plants is necessary evil, justify.
21. Draw labelled diagram of human heart.
22. Give dental formula of an adult. And how is the required pH maintained in the stomach?
23. Define holozoic nutrition. And how is it different from saprophytic nutrition?
24. Mention the main components of blood. And trace the pathway of oxygenated blood in the body.
25. Leaves of a healthy potted plant, were coated with Vaseline. Will this plant remain healthy for long? Give reason for your answer.
26. Multiple choice questions
27. In which of the following vertebrate groups / group , heart does not pump oxygenated blood to different parts of the body?
28. Pisces and Amphibian b) Amphibians and reptiles c) Amphibians only d) Pisces only
29. Which is the correct sequence of air passage during inhalation?
30. Nostril, Larynx, Pharynx, Trachea, Lungs b) Nasal Passage, Trachea, Pharynx, larynx, Alveoli c) Larynx, Nostrils, Pharynx, Lungs d) Nostrils, Pharynx, Larynx, Trachea, Alveoli.
31. If salivary amylase is lacking in the saliva, which event will be affected in the mouth?
32. Proteins breaking into amino acids, b) Starch breaking into sugars c) Fats breaking into fatty acid and glycerol d) Absorption of vitamins
33. Which is the most common transpiration?
34. Stomatal b) Lenticular c) Cuticular d) b and c
35. In which portion of the following glucose concentration is highest?
36. Glomerulus b) Proximal convoluted tubule c) Distal convoluted tubule d) collecting tubule.
37. Assertion and Reasons
38. If both assertion and reason are true and reason is correct explanation of assertion.
39. If both assertion and reason are true but reason is not correct explanation of assertion.
40. Assertion is true and Reason is false
41. Assertion is false and Reason is true
42. Assertion: Light is one of important factor in Transpiration.

Reason: Light induces stomatal opening and closing.

1. Assertion: Small intestine is the principal organ for absorption of nutrients.

Reason: Absorption of water, simple sugars and alcohol takes place in small intestine.

1. Assertion: Urethera of male is called urino genital canal.

Reason: Urethera carries both urine and sperm.

1. Assertion: In plants food is stored in form of glycogen

Reason: In human beings, food is stored in form of glycogen.

1. Assertion: Pericardium protects the heart from mechanical injury.

Reason: Pericardium is a thin transparent two layered sac around the heart.

1. Assertion: Transpiration lowers down the plant temperature.

Reason: Transpiration reduces the concentration of mineral salts.

1. Assertion: All living cells of root, stem, leaves respire day and night.

Reason: In higher plants the respiration in older leaves and stems takes place through stomata