SCIENCE – CLASS IX

Self Assessment Paper 2

1. The two forms of oxygen found in the atmosphere are

   (a) water and ozone **(b)** water and oxygen

   (c) ozone and oxygen **(d)** water and carbon-dioxide

   OR

   One of the following factors does not lead to soil formation in nature.

   (a) The sun **(b)** Water

   (c) Wind **(d)** Polythene bags

2. Sound travels in air, if

   (a) particles of medium travel from one place to another

   (b) there is no moisture in the atmosphere

   (c) disturbance moves

   (d) both particles as well as disturbance travel from one place to another

3. The number of electrons in an element X is 15 and the number of neutrons is 16. Which of the following is the correct representation of the element?

   (a) $^{31}_{15}X$ **(b)** $^{31}_{16}X$

   (c) $^{16}_{15}X$ **(d)** $^{15}_{16}X$

   OR

   The electron distribution in an aluminium atom is

   (a) 2, 8, 3 **(b)** 2, 8, 2

   (c) 8, 2, 3 **(d)** 2, 3, 8

4. Expression for Power of an object is equal to:

   (a) Power = Work done × Time **(b)** Power = Time/ Work done

   (c) Power = Work done/Time **(d)** Power = Force × Displacement

   OR

   Water stored in a dam possesses

   (a) no energy **(b)** electrical energy

   (c) kinetic energy **(d)** potential energy

5. Which one of the following causes kala-azar?

   (a) Ascaris **(b)** Trypanosoma

   (c) Leishmania **(d)** Bacteria

   OR

   Choose the wrong statement.

   (a) High blood pressure is caused by excessive weight and lack of exercise.

   (b) Cancers can be caused by genetic abnormalities.

   (c) Peptic ulcers are caused by eating acidic food.

   (d) Acne in not caused by *Staphylococci.*

6. A few substances are arranged in the increasing order of 'forces of attraction' between their particles. Which one of the following represents a correct arrangement?

   (a) Water, air, wind **(b)** Air, sugar, oil

   (c) Oxygen, water, sugar **(d)** Salt, juice, air

AI 7. The cell organelle involved in forming complex sugars from simple sugars are

(a) endoplasmic reticulum **(b)** ribosomes

(c) plastids **(d)** golgi apparatus

8. Select the incorrect sentence.

(a) Blood has matrix containing proteins, salts and hormones.

(b) Two bones are connected with ligament.

(c) Tendons are non-fibrous tissue and fragile.

(d) Cartilage is a form of connective tissue.

9. A girl stands on a box having 60 cm length, 40 cm breadth and 20 cm width in three ways. In which of the following cases, pressure exerted by the brick will be

(a) maximum when length and breadth forms the base.

(b) maximum when breadth and width forms the base.

(c) maximum when width and length forms the base.

(d) the same in all the above three cases.

10. A body is thrown vertically upward with velocity u, the greatest height h to which it will rise is

(a) u/g **(b)** $u^2/2g$

(c) u^2/g **(d)** u/2g

11. What is a pure substance ?

OR

Give an example of a liquid in liquid type solution.

12. If the electronic configuration of an atom X is 2, 8, 1, calculate the total number of electrons and write the name of an atom.

13. Write the name of the phylum to which turtle and king cobra belong to.

OR

What is the lowermost category in the hierarchy of classification of groups of organisms ?

AI **14.** While getting down a moving bus, why should a person run in the same direction as that of the bus ?

OR

AI Which has more inertia, a cricket ball or a rubber ball of the same size ? Give reason for your answer.

15. Write the SI unit of weight.

DIRECTIONS (Qs. 16 to 20) : In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

(c) Assertion (A) is true but reason (R) is false.

(d) Assertion (A) is false but reason (R) is true.

16. **Assertion:** Nitrogen is a micronutrient.
Reason: Micronutrients are nutrients required in small quantity.

17. **Assertion:** Ceilings of concert hall and conference halls are made flat.
Reason: Such ceilings reflect the sound and spread it evenly across the width of the hall.

18. **Assertion:** A gas exerts pressure on the walls of the container.
Reason: Rate of diffusion of gases is more than that of liquids.

19. **Assertion:** Milk is a pure substance.
Reason: Milk can be separated by physical process into its components. It has components like water, fat, proteins etc.

20. **Assertion:** Atoms can neither be sub-divided, created nor destroyed.
Reason: This postulate of Dalton's theory is the result of law of constant proportion.

Section 'B'

21. Define Animal husbandry. Why livestock production needs to be improved ?

OR

AI **(a)** Classify three major groups of activities for improving crop yields.

(b) Name another way of improving crop variety. How is it done?

22. Is the inter-conversion of three states of matter possible ? Illustrate with a schematic diagram.

OR

List three characteristics of particulate nature of matter.

23. How are the following related to each other ?

(i) Chromatin network and chromosomes

(ii) Chloroplast and chlorophyll

(iii) Genes and DNA.

OR

AI Draw a diagram of a plant cell and label it's any four parts.

AI **24.** **(i)** Write the electronic configuration of an element X whose atomic number is 15.

(ii) An isotope of chlorine is represented as $^{37}_{17}Cl$. Calculate the number of electrons, protons and neutrons.

(iii) What are isobars ?

25. A man is suffering from AIDS.

(i) He is not able to fight off even minor infections. Why ?

(ii) Write any two ways in which he could have got this disease.

(iii) Will the treatment by antibiotics help him in AIDS ? Justify your answer.

26. A train travels at a speed of 60 km/hr for 0.52 hr, at 30 km/h for the next 0.24 hr and then at 70 km/h for the next 0.71h. What is the average speed of the train ?

27. What is meant by acceleration due to gravity ? Derive an expression for acceleration due to gravity in terms of mass M of earth and its radius R.

28. **(i)** State Archimedes' principle. Give two applications of this principle.

AI **(ii)** A sphere of iron and another of wood having the same radius are held under water. Which of these experiences a greater buoyant force ?

29. Define power. Derive its SI unit. An electric bulb is rated 15 watts. What does it mean ? What is the energy consumed in joules if it is used for 10 minutes ?

30. How defects in a metal block can be detected by using ultrasound ? Explain.

Section 'C'

31. **(a)** Can a homogeneous mixture have a variable composition ? Justify giving an example.

(b) What happens when :

(i) Dilute sulphuric acid is added to a mixture of iron filings and sulphur powder.

(ii) Dilute sulphuric acid is added to a mixture of iron filings and sulphur powder heated to red hot followed by cooling.

OR

(a) Mention any two differences between physical and chemical changes. Give one example of each.

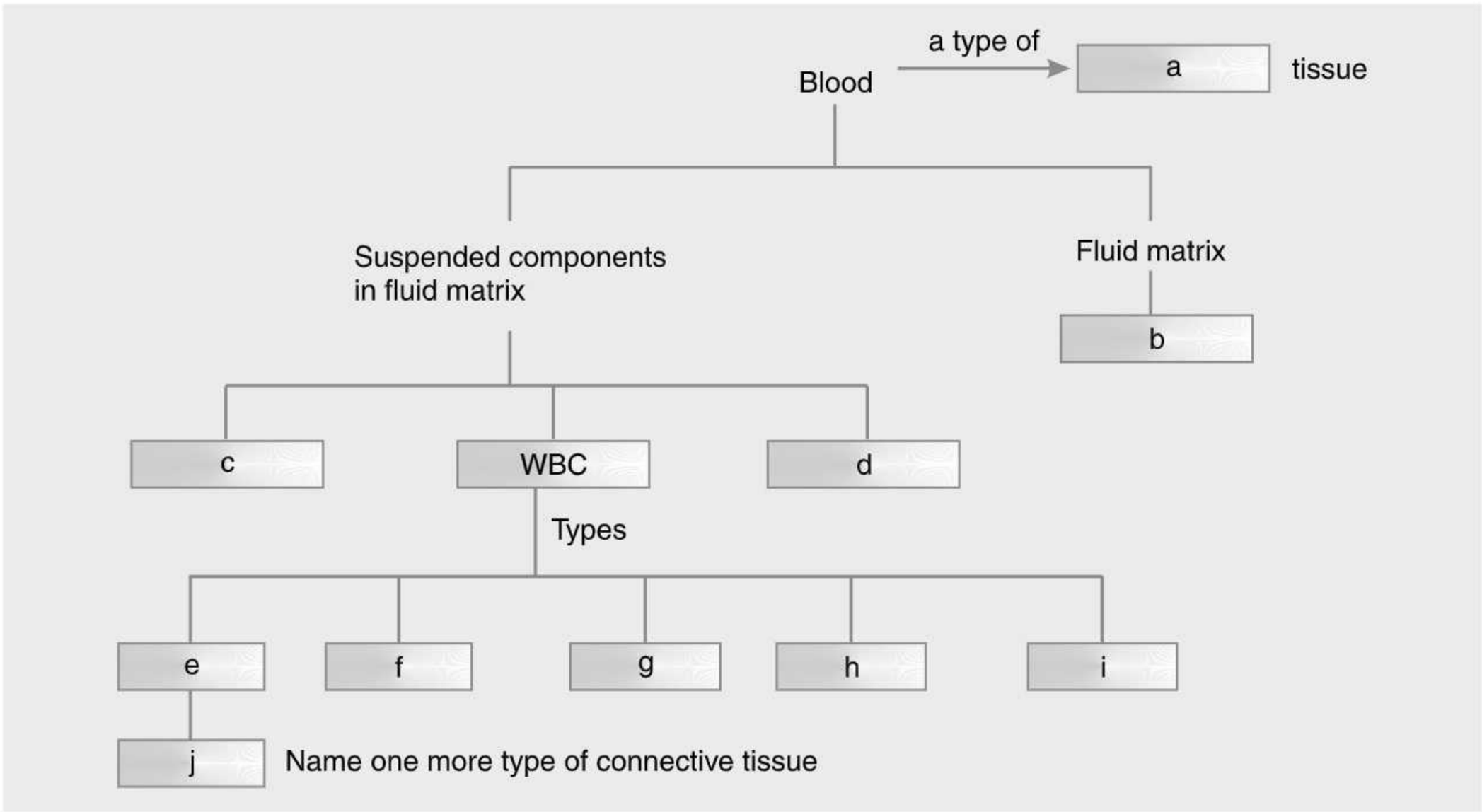
(b) List any two properties for each of the following case of metals which make them suitable to be used as :

(i) Utensils for cooking food

(ii) Wires for electrical connections.

32. With the help of a labelled diagram describe an activity to demonstrate the law of conservation of mass.

33. Complete the following flowchart :



34. **(a)** Rashmi went for a boat ride in a lake and brought a sample of plant A from the lake. It was green in colour, filamentous and did not have well-differentiated body.
Geeta went on a vacation to Shimla and brought the sample of plant B from there. Plant B had stem and leaf-like structures. Based on the identifying features, how will you classify plant A and plant B.

(b) Write any two differences between Cryptogams and Phanerogams.

AI **(c)** What do you understand by symbiotic relationship? Give one example mentioning the organisms involved in it.

OR

(a) Give reasons for the following :

(i) Echidna and platypus lay eggs, but are considered as mammals.

(ii) Forelimbs of birds are modified.

(iii) Crocodiles have a four-chambered heart, but are still reptiles.

(b) **(i)** Name the plants having seeds with two cotyledons.

AI **(ii)** Name the type of circulatory system in arthropods.

35. **(i)** Newton's first law of motion is also called law of inertia. Justify this statement.

(ii) A plastic ball and a cricket ball are rolled on the floor with same velocity. Which one will cover larger distance before stopping ? Give reason.

(iii) A truck is moving with a velocity of 72 km/h and it takes 3s to stop after the brakes are applied. Calculate the force exerted by brakes. Mass of truck is 1200 kg.

36. **(a)** Explain the biological and physical methods of nitrogen fixation.

(b) **(i)** Complete the nitrogen cycle in nature by labelling 'X' and 'Y' in the biogeochemical cycle shown below.

(ii) Explain the part marked 'X'.