

9. Rahul had a poor yield due to failure of crops. His father suggested that he should grow two or more crops simultaneously in his field as this would reduce the risk of loss. He suggested two crops that can be grown together.
- Write the name of the cropping pattern which his father suggested.
 - Suggest any two crops that can be grown in this method.
 - Mention any two values that are worth appreciation in his father's behaviour.
10. A body of mass 10 kg starts from rest and accelerates uniformly to attain a velocity of 8 m/s in 10 s. Calculate
- The force needed to cause this change.
 - The momentum at the start.
11. A person falling on a cemented floor gets injured but a person falling on a heap of sand is not injured. Why?
12. a) Differentiate between acceleration and retardation.
 b) An automobile vehicle has a mass of 1500 kg. What must be the force between the vehicle and road if the vehicle is to be stopped with a negative acceleration of 1.7 m/s^2 ?

OR

State Newton's second law of motion. Derive an expression for Newton's second law of motion.

13. Illustrate stepwise how will you find the valency of the following elements.
- Chlorine
 - Potassium
 - Phosphorus
14. Describe any three properties of true solutions.

OR

- Write any two differences between mixtures and compounds.
 - Classify the following as physical and chemical change.
 - Burning of paper
 - Cutting of trees
 - Ripening of fruits
 - Formation of curd from milk.
15. State in brief what happens when
- dry apricots are left for sometime in pure water.
 - a red blood cell is kept in concentrated salt solution.
16. Give an example each for the mixture having the following characteristics. Suggest a suitable method to separate the components of these mixtures.
- A volatile and a non volatile component.
 - Two volatile components with appreciable difference in their boiling points.
 - One of the components that change directly from solid to gaseous state.
 - Two or more coloured constituents that are soluble in same solvent.
 - One of the components that attract magnet.
17. Define evaporation. List the factors on which the rate of evaporation depends and explain how it depends on each of them with example.
18. a) Identify the following muscular tissue and draw diagrams.
- Tissue A is mostly attached to bones and help in body movement.
 - Tissue B is found in alimentary canal, iris of the eyes etc.
- b) Give any two differences between tissue A and B.
19. Answer the following questions.
- Give any two differences between plasma membrane and cell wall.
 - What is the advantage of flexibility of plasma membrane for a unicellular organism such as amoeba?
 - Which cell organelle is known as power house of the cell?
 - Where are chromosomes present in a cell? What is their chemical composition?

20. a) Write the 3 equations of motion.
b) A ball is gently dropped from a height of 20 m. If its velocity increases uniformly at the rate of 10m/s^2 , with what velocity will it strike the ground?
21. a) Derive an expression for acceleration due to gravity 'g'.
b) An object is hung on the hook of a spring balance. This system is taken to a place at the pole and at the equator and the reading is noted. What difference can you notice? Why?

OR

State universal law of gravitation. Derive an expression for gravitation constant G. What is the value of gravitation constant?

22. State the method by which we can prepare colloid of starch.
23. A student while observing slides of onion peel and cheek cells, observed darkly stained spherical bodies or oval structure. What is this structure called? State its function.
24. You are given two slides of plant tissues - parenchyma and collenchymas. State two features to identify the slides.
25. After observing the slides of striped muscle fibres, students were asked to write the characteristics of the tissue. Write the correct observations.
26. Magnesium ribbon burns in air with a dazzling white flame and leaves behind a residue.
a) Name the residue formed and state its colour.
b) Define the chemical reaction which takes place.
27. When a magnet is rolled on a mixture of iron filings and sulphur, the iron particles stick to the magnet, but not the sulphur particles. When this mixture is heated to form iron sulphide, then the iron particles do not stick to the magnet. Explain.