
CBSE SAMPLE PAPER – 1 (Solved)
SUMMATIVE ASSESSMENT – I
Class-IX (SCIENCE)

Time: 3 Hrs

MM: 90

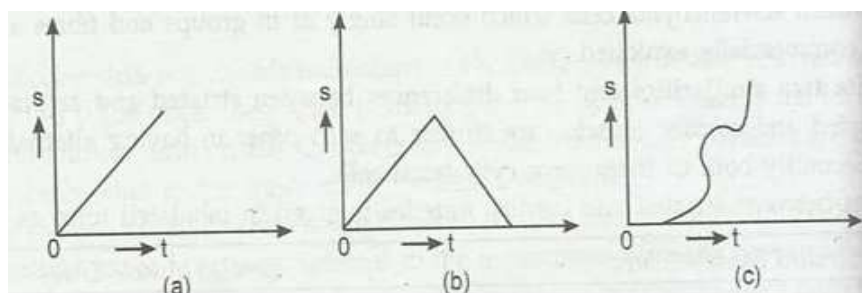
General Instructions

- (i) The question paper comprises of two Sections, A and B. You are to attempt both the sections.
- (ii) All questions are compulsory.
- (iii) Question numbers 1 to 3 in Section-A are one mark questions. These are to be answered in one word or in one sentence.
- (iv) Question numbers 4 to 6 in Sections-A are two marks questions. These are to be answered in about 30 words each.
- (v) Question numbers 7 to 18 in Section-A are three marks questions. These are to be answered in about 50 words each.
- (vi) Question numbers 19 to 24 in Section-A are five marks questions. These are to be answered in about 70 words each.
- (vii) Question numbers 25 to 33 in Section-B are multiple choice questions based on practical skills. Each question is a one mark question. You are to select one most appropriate response out of the four provided to you.
- (viii) Question numbers 34 to 36 in Section-B are two marks questions are to be answered in about 30 words each based on practical skills.

Section – A

- 1. Name the tissue present at the base of leaves of plants.
 - 2. What is the direction of velocity of an object moving along a circular path?
 - 3. Mention any two useful characteristics to improve crop variety.
 - 4. How is heating of sugar and heating of ammonium chloride different from each other?
Explain your answers.
 - 5. Describe the structure of mitochondria with special reference to its membrane covering.
 - 6. Harsh saw many apples on the tree but was not able to pluck them. His friend asked him to shake the branches. While shaking few apples fall down. Explain why?
 - 7. Tyndall effect can be observed when sunlight passes through a canopy of dense forest.
Explain it.
 - 8. Mention three points to justify that air is a mixture and not a compound.
 - 9. A little boy was playing in a park with his maid. Suddenly he fell down and got minor injury.
Maid applied tincture iodine on the wound.
 - a. Why did she apply tincture of iodine on the wound?
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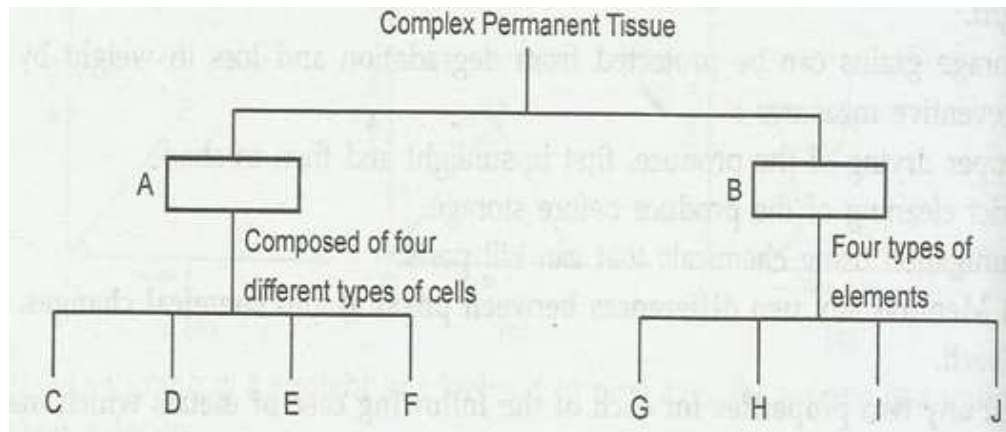
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- b. Name the solute and solvent present in tincture of iodine.
10. Name the following and give one characteristic of each:
- A modified parenchyma tissue that provides buoyancy to hydrophytes plants.
 - A fibrous connective tissue of great strength but limited flexibility.
 - A present in the husk of coconut which is commercially exploited.
11. Write two similarities and two differences between striated and cardiac muscles.
12. The mass of the earth is 6×10^{24} kg and that of the moon is 7.4×10^{22} kg. if the distance between the earth and the moon be 3.84×10^5 km. calculate the force exerted by the earth on the moon. ($G = 6.67 \times 10^{-11} \text{ N M}^2\text{kg}^{-2}$)
13. If a ball is thrown straight upwards at a speed of 11m/s from balcony, 4 m above the ground, how much time would it take to strike the ground at the base of the balcony.
14. Describe the motion represented by the following displacement:



15. Describe any three effects of force with the help of one example each.
16. Mention the type of honey bee you will prefer to rear if you are running an apiary. Give three reasons for your choice. Also list any two factors on which the quality of honey depends.
17. Mention three ways by which the insect pests attack the plants.
18. Write three ways by which storage grains can be protected from degradation and loss in weight.
19. (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 makes them suitable to be used as: utensils of cooking food; wires of electrical connections.
20. (a) Why do solids have fixed shape and fixed volumes?
- (b) Why is air dense at the sea level?
- (c) On melting of ice, there is decrease in volume instead of increase. Why?
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(d) What is the binding force between molecules of a substance if a gas under ordinary conditions of temperature and pressure?

21. Complete the following table for plants:



22. State the law of conservation of momentum.

A bullet of mass 10 g moving with a velocity of 400 m/s gets embedded in a freely suspended wooden block of mass 900 g. What is the velocity acquired by the block?

23. (a) A bar of metal has a mass 200g and a certain weight mass remain the same when weighted at equator but weight decreases. Why?

(b) What will be the change in weight on poles as compared to that at equator?

(c) Where is the value of “g” equal to zero on earth?

(d) What happen if there is no acceleration due to gravity?

24. (a) Differentiate between mixed cropping and inter-cropping. Give one example of each.

(b) How is crop rotation different from above two?

(c) Mention the factors that are taken into consideration for deciding choice of crops for inter-cropping and crop rotation.

Section B

25. Food samples taken by four students A,B,C,D to test the presence of starch are:

(A) grape juice

(B) lemon juice

(C) soup of mixed pulses

(D) rice extract

The student who will be able to obtain positive result is

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- (a) A (b) B
(c) C (d) D

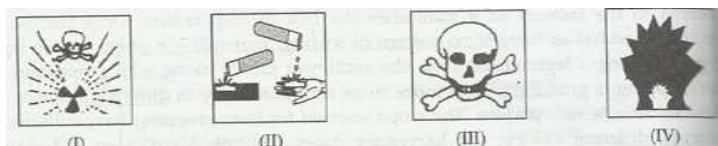
26. The steps for conducting the starch test on the given sample of potato are given.

- (i) Take crushed potato in a test tube.
(ii) Add few drops of iodine.
(iii) Add water to the test tube.
(iv) Boil the contents and filter.

The most appropriate order in which the steps should be followed are:

- (a) i, iii, iv, ii (b) iii, iv, ii, i
(c) iv, ii, I, ii (d) ii, I, iii, iv

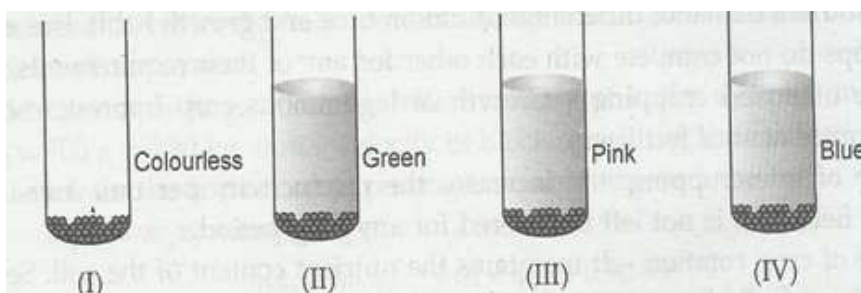
27. Four safety symbols for carbon disulphide are given below:



The most appropriate symbol for carbon disulphide is

- (a) I (b) II
(c) III (d) IV

28. Rama heated a mixture of iron filing and sulphur powder in a hard glass test tube for some time till a grey black product was formed. She cooled the test tube and then added 2 ml of carbon disulphide in it and then shook the contents of the test tube. The observation made by her is likely to be as shown below:



The correct observation is:

- (a) I (b) II
(c) III (d) IV

29. The crystal of copper sulphate change its colour on heating. The change in colour is from blue to

- (a) black b) brown
-

- (c) yellow d) white
30. For making a temporary mount of an onion peel cells Khushi wrote the steps and showed it to her teacher. The step that her teacher corrected was:
 - (a) Take a clean slide and put a drop of glycerine on it.
 - (b) Take a scaly part of the onion from convex side of the onion and place it in water.
 - (c) Add a drop of safranin.
 - (d) Mount the specimen and cover it with a cover slip.
31. You are shown two plant slides of parenchyma and sclerenchyma. You can identify the sclerenchyma by the
 - (a) thickness of cell wall (b) location of nucleus
 - (c) position of vacuoles (d) size of cells
32. A mixture of sodium chloride and ammonium chloride both are of white colour. They can be separated by:
 - (a) evaporation, sublimation (b) sublimation, crystallization
 - (c) centrifugation, distillation (d) distillation, sublimation
33. An object of mass 5 kg is moving with a constant velocity on a frictionless surface. Force required to maintain the velocity will be :
 - (a) 5N (b) 50N
 - (c) 0.5N (d) 0 N
34. Which of the following cannot pass through filter paper? And which one is a transparent solution.
Suspension, colloidal solution, true solution.
35. After a solid starts melting, we observe that the temperature remains constant until the whole of the solid has melted. Where does the energy go during that phase of melting?
36. If x is the initial mass of the raisins and y is the final mass of raisins after soaking in water. Calculate the percentage of water absorbed by raisins.

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Answers

Section A

1. Intercalary meristem.
 2. The direction of velocity is along the tangent drawn on the circle at given point.
 3. Higher yield, wider adaptability and shorter duration of crop.
 4. Sugar on heating melts to give liquid state, ammonium chloride sublimates on heating and changes to vapor form.
 5. Mitochondria is a double membranous organelle which is also called as “power house of the cell”. The outer membrane is smooth and permeable whereas the inner membrane is thrown into folds to form cristae.
 6. Apples on the tree are in state of rest. When Harsh shook the branches of apple tree, the branches acquired state of motion. However, apples remained in rest due to the inertia of rest. So, some apples got separated from the branches.
 7. (a) There are colloidal particles of mist in the forest. Light passing from the canopy of forest is scattered and we can see the Tyndall effect.
(b) Smoke, milk.
 8. Air shows the property of its constituents. It can be separated by physical process and no new compound is formed.
 9. (a) She applied tincture iodine on the wound because iodine is antiseptic.
(b) The solute is iodine and the solvent is alcohol.
 10. (a) Aerenchyma- large air cavities.
(b) Tendon- great strength but limited flexibility.
(c) Sclereids- broad thick walled.
 11. Striated and cardiac muscles are similar to each other in having alternate light and dark bands. Both of them have cylindrical cells.
Striated muscles are voluntary in nature but cardiac muscles are involuntary in nature.
Striated muscles are multinucleate but cardiac muscles are uninucleate.
 12. $M = 6 \times 10^{24} \text{ kg}$, $m = 7.4 \times 10^{22} \text{ kg}$, $d = 3.84 \times 10^8 \text{ m}$.
-

$$F = G \frac{M_1 M_2}{d^2}$$

$$F = 6.67 \times 10^{-11} \frac{(6 \times 10^{24}) (7.4 \times 10^{22})}{(3.84 \times 10^8 \text{ m})^2}$$

$$= 2.0 \times 10^{20} \text{ N}$$

13. $u = 11 \text{ m/s}$, $s = 4 \text{ m}$, $g = 9.8 \text{ m/s}^2$.

$$S = ut + \frac{1}{2} at^2$$

$$= -4 = 11t + \frac{1}{2} \times -9.8 \times t^2$$

$$t = 2.56 \text{ s}$$

14. (a) uniform motion.

(b) constant speed but after half time the direction of motion is reversed.

(c) non-uniform motion.

15. A force may start motion in an object in rest. Toy train starts moving on applying force.

A force may slow down the motion. Car stops when break is applied.

A force may change the shape of an object. Balloon change in shape on application of force.

16. I will prefer Italian honey bee *Apis mellifera* because of following reasons:

(a) Italian honey bee stays in a beehive for longer period.

(b) It breeds well.

(c) It has high honey collecting capacity.

17. Insects pests attack the crop plants in following three ways:

(a) They cut the root, stem and leaf.

(b) They bore into the stem and fruit.

(c) They suck the cell sap from various parts of the plant.

18. Storage grain can be protected from degradation and loss in weight by adopting following preventive measures.

(a) Proper drying of the produce.

(b) Strict cleaning of the produce before storage.

(c) Fumigation using chemicals that can kill pests.

19. (a) (i) In a physical change a change in the physical state of substance takes place. Such as melting of ice.

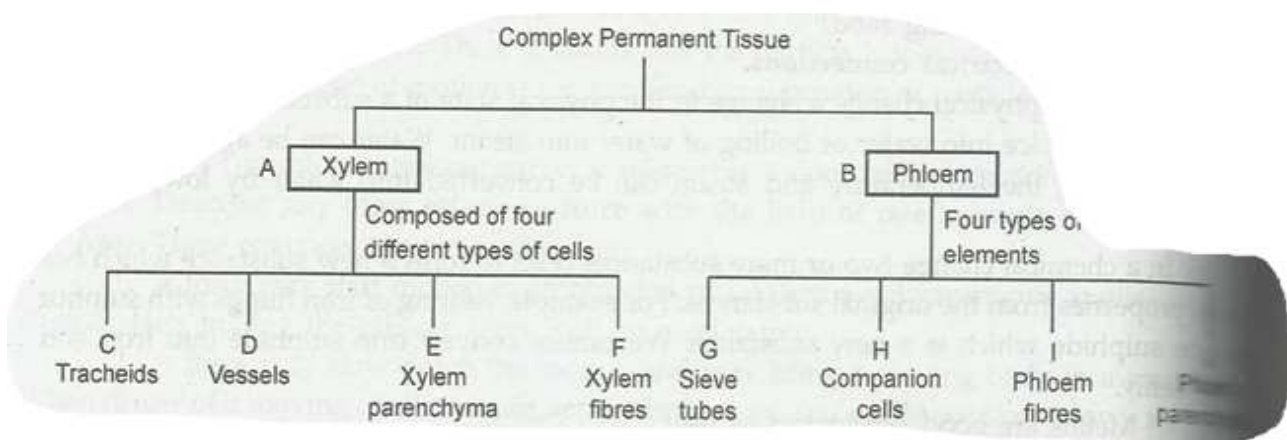
(ii) In a chemical change two or more substances react to form a new substance which has different properties from original substance.

(b) (i) Metals are good conductor of heat.

(ii) Metals are good conductor of electricity.

20. (a) In solids, the particles are closely packed and their positions are fixed due to strong force of attraction.
- (b) Air at sea level is compressed by the mass of air above it. Hence, air is more dense at sea level.
- (c) There are empty spaces in the packing of water molecules in ice. On heating ice changes into water and molecules come closer.
- (d) The binding force between the molecules of gas is van der waals force.

21.



22. It states that the total momentum of an isolated system of particles remains conserved and does not change due to mutual action-reaction forces amongst the particles of system.
- $M = 10 \text{ g} = 0.01 \text{ kg}$, $u_1 = 400 \text{ m/s}$, $m = 900 \text{ g} = 0.90 \text{ kg}$, $u_2 = 0$.
- $Mu_1 + mu_2 = (m_1 + m_2)v$
- $V = \frac{0.01 \times 400 + 0.90 \times 0}{0.01 + 0.90} = 4.4 \text{ m/s}$.
23. (a) Mass of an object is a measure of its inertia and does not change from one place to another. Weight = mass x acceleration. As value of g varies from place to place, the weight of a bar of metal of given mass decrease when it is brought to equator.
- (b) As value of g is maximum at the poles, hence weight is more than the corresponding weight of the object at the equator.
- (c) Value of g is zero at the centre of earth.
- (d) If there is no acceleration due to gravity then any object may continue to move, even in vertically upward direction, with constant speed.

24. (a) Mixed cropping is raising of different types of crops on the same farm at same time. It insures good returns to the farmers in case of crop failure.

Inter-cropping is growing two or more crops simultaneously in different rows in a same field in definite pattern.

(b) The growing of different crops on a piece of land in preplanned succession is known as crop rotation.

(c) Depending upon the duration, crop rotation is done for different crop combinations. The availability of moisture and irrigation facilities decide the choice of the crop be cultivated after one harvest.

In mixed cropping the selection of crops depends upon root pattern, water requirement, nutrient demand etc.

Section B

25. (d)

26. (a)

27. (d)

28. (a)

29. (d)

30. (a)

31. (a)

32. (b)

33. (d)

34. Suspension cannot pass through the filter. True solution forms transparent solution as solute and solvents are uniformly intermixed.

35. The temperature remain constant because the heat energy is used to increase the kinetic energy of the particles.

36. The percentage of water absorbed by raisins = $\frac{\text{final mass} - \text{initial mass}}{\text{initial mass}} \times 100$.
 $= (y-x)/x \times 100$.
