CBSE SAMPLE PAPER – 02 (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 organelle which has membrane bound sac filled with powerful digestive enzymes.
2. What is numerical ratio of average velocity to average speed of an object when it is moving along a straight path?
3. Name the two major sources of food for all living organisms.
4. (a) How can we liquefy gases?
   (b) Why do clothes take more time in drying on a rainy day?
5. Categories the difference manure into various groups on the basis of its biological material used.
6. Distinguish between terms mass and weight.
7. How will you separate a mixture of common salt, camphor and iron fillings? Describe the process.
8. A teacher told three students A,B and C to prepare 25% of KOH. Student A dissolved 25 g of KOH in 100 g of water, student B dissolved 25 g of KOH in 100ml of water and student C dissolved 25 g KOH in water and made the volume 100 ml. which one of them has made required 25 % solution and why?

9. Ramesh was a good player but his sports teacher observed that he takes drugs. Ramesh denied this. Then the teacher asked him to go for blood test. Answer the following questions:

(a) Name the technique that can be used to detect the presence of drug in blood.

(b) Write other application of this technique.

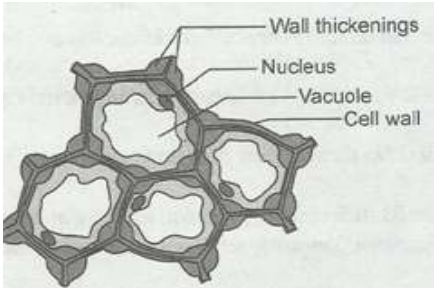
10. Identify the type of tissue in the following and give its characteristic feature:

(a) Eye lid

(b) Inner lining of the intestine.

(c) Lining of kidney tubule.

11. Identify the plant tissue in the given diagram.



(a) What is the location of this tissue?

(b) State the function of this tissue.

12. What is the effect of force, when it is applied in the following cases?

(a) Balloon is pressed from opposite sides

(b) A ball is hit with a bat.

(c) Spring is compressed.

13. When will you say a body is in:

(i) Uniform acceleration

(ii) Non-uniform acceleration?

14. (a) Suppose a planet exists whose mass and radius both are one-half of the value of earth. Calculate the acceleration due to gravity on the surface of this planet.

(b) What is acceleration produced in a freely falling body of mass 10 kg.

15. (a) State the name of the object which has more inertia:

(i) a rubber ball and a stone of the same size.

(ii) an empty box and another similar box filled with clothes.

(b) Give reason for the following:

(i) Luggage placed on the roof of a car or bus is tied with rope.

(ii) When a branch of a tree is shaken vigorously, some of the leaves drop down.

16. Define animal husbandry? Why live stock production needs to be improved?

17. Define crop rotation. What is the basis of choice of the crop to be cultivated after one harvest? In what way crop rotation is advantageous?

18. Mention the three characteristics features as well as function of a complex tissue Xylem.

19. (a) List three characteristic of particles of matter. When we add some sugar or salt in a beaker containing water, after sometime the sugar or salt becomes invisible. Where does it go? What property of particle of matter does it show?

(b) How will you justify that ice, water and stem are the three states of a substance and not different substance?

20. (a) Which separation technique you will apply for the separation of the following mixtures:

(i) Oil from water

(ii) Camphor from sand

(iii) Sodium chloride from the solution in water.

(iv) Metal piece from engine oil of car.

(v) Cream from milk.

21. Based upon their function and structure, identify the following and draw well labelled diagram for the same.

(a) Pore like structure present on epidermis of leaves through which exchange of gases takes place.

(b) Double membranous organelles which is referred as the power house of the cell.

(c) Spindle like uninucleate cells that contain contractile proteins.

22. Describe the effect of following forces acting upon an object:

(a) Force of gravity< air resistance.

(b) Force of gravity > air resistance

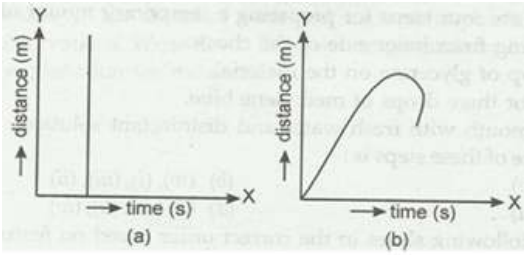
(c) Mechanical pull on a bike> frictional force

(d) Mechanical pull on a bike< frictional force

(d) Action and reaction force.

23. (a) Derive the equation of motion, $2as = v^2-u^2$ by graphical method.

(b) Which of the following distance-time graph is possible? Give reason for your answer.



24. Mention and explain five different desirable traits used in varietal improvement in poultry farming.

Section B

25. Select the cell that contains starch:

(a) Onion cell (b) Cheek cell

(c) Amyloplast (d) Prokaryotic cell

26. Students were instructed to add a drop of iodine to each of the following sample

(A) Cooked rice

(B) Boiled potato

(C) Sugar

(D) Salt

The blue-black colour was observed in

(a) A and C (b) A and B

(c) C and D (d) B and D.

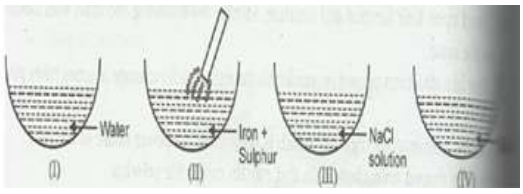
27. X is a mixture of iron filling and sulphur. Y is a compound which is obtained by heating the mixture X and it has been crushed to a fine powder. After moving a magnet over both X and Y. It is observed that:

(a) X and Y both are attracted.

(b) X is attracted while Y is not.

(c) Y is attracted while X is not attracted.

28. Observe the following diagram and choose the correct option:



(a) III is an element (b) II is a mixture

(c) IV is a compound (d) I is an element.

29. An iron nail was suspended in copper sulphate solution and kept for a while. The solution

(a) remained blue and coating was formed on the nail.

(b) turned pale green and coating was formed on the nail.

(c) remained blue and no coating was formed on the nail.

(d) turned pale green and no coating was formed on the nail.

30. Given below are four steps for preparing a temporary mount of human cheek cells:

(a) Taking scraping from inner side of the check.

(b) Putting a drop of glycerine on the material.

(c) Adding two or three drops of methylene blue.

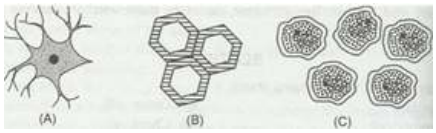
(d) Rinsing the mouth with fresh water and disinfectant solution.

The correct sequence of these steps is:

(a) ii, iii, I, iv (b) iv, I, iii, ii

(c) iv, i, ii, iii (d) I, iii, ii, iv.

31. Identify the following slides in the correct order based on features:



(a) nerve cell, sclerchyma and parenchyma

(b) nerve cell, parenchyma, sclerenchyma

(c) sclerenchyma, parenchyma, nerve cell

(d) sclerenchyma, nerve cell and parenchyma.

32. A mixture contains only iodine, ammonium chloride and sand. Only iodine and ammonium chloride is sublime. Only iodine dissolves in carbon tetra chloride.

How will you separate the three components? Sequence of steps will be

(a) By sublimation, addition of carbon tetra chloride.

(b) Addition of carbon tetra chloride and filtration, sublimation.

(c) Sublimation, addition of water, filtration

(d) Evaporation, distillation, crystallization.

33. Which of the following is not found in the check cell?

(a) Cytoplasm

(b) Nucleus

(c) Cell wall

(d) Cell membrane.

34. Identify two clear and transparent solution from the following mixtures:

(a) Milk and water

(b) Sugar and water

(c) Chalk powder and water

(d) Starch and water

35. List two precautions you must take while finding the melting point of ice.

36. A student puts five raisins each in two beakers A and B. Beaker A contains 20 ml of distilled water and beaker B has 20 ml of saturated sugar solution. After sometime the student would make certain observation. Write down the observation made by the student in beaker A and B and probable explanation for the same.

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Answers

Section A

1. Lysosomes.
2. 1:1
3. Plants and animals are two major sources of food.
4. (a) Decreasing temperature and increasing pressure.
   (b) Due to high humidity.
5. The two main types of manure are compost and vermiform compost. In composting process decomposition is done by bacteria and fungi but in vermiform composting earthworm is used to hasten the decomposition.
6. Mass is the measure of inertia of a body. Its SI unit is kg. On the other hand, weight is the force by which earth attract the body towards the centre. Its SI unit is Newton.
7. Camphor can be separated by sublimation. Iron filling can be separated from common salt by magnetic separation.
8. Student C has made required 25% solution. As concentration of solution is equal to mass of solute divided by mass of solution and multiplied by 100.
9. (a) Centrifugation.
   (b) This technique is used in washing machine to squashes water and urine analysis.
10. (a) involuntary muscles.
    (b) Suamous epithelium
    (c) Glandular epithelium.
11. (a) Collenchymas tissue
    (b) Around the mid veins of leaves and epidermis of fruits.
    (c) Provide flexibility and mechanical support.
12. (a) Change in size.
    (b) Change in velocity.
    (c) Change in shape and size.
13. (a) When a body changes its velocity equally in equal interval of time the acceleration is called uniform acceleration.

(b) When the change of velocity of a body is not equal in equal interval of time, the motion is non-uniform acceleration.

14. Let the initial mass = m kg, Radius = r m.

$g = Gm/r2.$

Now, mass is reduced to half so, new mass = m/2 kg, new radius = r/2

$g = G \times m/2 \times 4/r2 = Gm \times 4/r2$

$g = 2g.$

15. (a)

(i) A stone.

(ii) Box filled with clothes.

(b) The language placed over the car of bus is tied with rope to avoid the falling due to inertia of rest as well as motion. When the vehicles stops suddenly or come to motion.

(c) When the branch is shaken vigorously, the branch come to motion but the fruits and leaves remain in state of rest due to inertia and get detached.

16. Animal husbandry is the scientific management of animal livestock. It includes shelter, feeding, breeding and disease control of farm animals.

Livestock production should be increase the increase the food production. The milk, meat and eggs are obtained from animals which are highly portentous.

17. The process of cropping different plants on the same piece of land alternately, specially leguminous plants in between two rice and wheat crop is called crop rotation.

The choice of crop depends upon the nutritional requirement of plant and time of maturity of plant.

Crop rotation helps in maintaining the fertility of soil.

18. Xylem tissue is a type of complex plant tissue which is permanent in nature. The three characteristic features includes:

a. They transport water and minerals from root to shoot in upward direction.
b. They are made up of vessels, trachieds, xylem parenchyma and xylem fibres.
c. They occupy the central position in root and stem.

19. (a) The three characteristic feature of particles of matter are:

(i) They have intermolecular force of attraction.

(ii) They have space between the particles.

(iii) They have kinetic energy.

When sugar or salt is added to water the crystals splits into minute particles that settle between the spaces present between the particles of water. This shows that particles of matter have space between them.

(b) Water, ice and water vapour are different state of same matter because they consists of same kinds of particles. The difference in intermolecular space and force make them due to different temperature and pressure.

20. (a) Decantation using separating funnel.

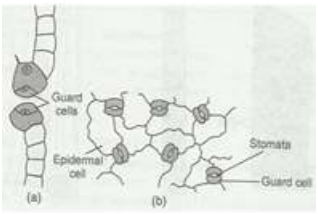
(b) Sublimation

(c) Evaporation.

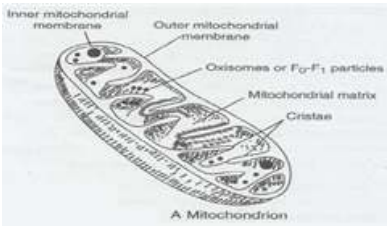
(d) Filtration

(e) Centrifugation.

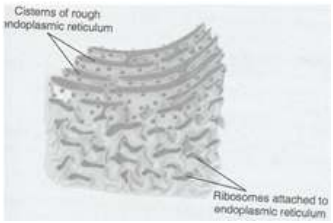
21. (i) Stomata.



(ii) Mitochondria.



(iii) Endoplasmic reticulum.



22. (a) Object will remain floating in air.

(b) The object will be attracted towards the earth surface.

(c) The bike will move in straight line.

(d) The bike will not move from its position.

(e) Action and reaction force are equal in magnitude but opposite in direction.

23. Graph (b) is possible only. In graph (a) object is traveling some distance but time taken is always same. The body will certainly tame some time to move from one position to another position.

In Graph (b) body is first moving with uniform motion and later on start moving with non-uniform motion in zigzag manner.

24. Desirable traits used in varietals improvement in poultry farming are:
    a. Higher yield- to get more production by less investment.
    b. Improved nutritional quality – Food grain contain more protein and carbohydrates than the traditional one.
    c. Resistance to disease- The new variety should be resistance to various bacterial and fungal diseases.
    d. Wide range of adaptablity- The new crops must be grown in any kinds of soil combination and climatic conditions.
    e. Early maturity- The maturity period must be less than traditional one to raise more crops in same field.

Section B

25.	(a)	28.	(a)	31.	(b)
26.	(b)	29.	(b)	32.	(c)
27.	(b)	30.	(c)	33.	(c)

34. Clearand transparent solution- (b) and (e).

35. The two precautions are:
    (i) Ice should be crushed and very minute sized.
    (ii) Thermometer should not touch the bottom or wall of container.

36. Observation by student A – The raisins swell in size and their weight gets increased due to absorption because endosmosis takes place from higher concentration to lower concentration.

Observation by student B – The raisins shrinks in size and weight get reduced. This happen due to exo-osmosis. Concentrated sugar solution has less water than raisins.