CBSE SAMPLE PAPER – 03 (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 two cell organelles having membrane envelope.
2. Ravi throws a heavy stone out of his small boat. As results boat moves in opposite direction. Why?
3. Distinguish between intervarietal and interspecific hybridization of crop plant.
4. A mixture of alcohol and water is homogenous while that of oil and water is heterogeneous. Explain.
5. Mention the different components of blood?
6. Let us consider the force of gravitation between two objects at F and distance between them as r. What will be the effect on force if:
   a. r is reduced to $1/4^{th}$?
   b. the masses of both the objects are increased by three times.
7. Describe an activity to show that particles of matter have space between them.
8. With the help of an activity show that gases are more easily compressible than liquids and solids.

9. Gungun was washing his car with pipe. Water was coming with great pressure. His friend Mukesh was watching it. He said to gungun that you are wasting drinking water. We should use minimum amount of water.
    a. Was Mukesh right in his statement?
    b. What are the different components of purification system in water work?
10. Draw labelled diagrams to show the difference between the structures of any two types of muscle fibres.
11. Name the following and give one characteristic of each:
    a. Living tissue that provides mechanical support in plants.
    b. Highly specialized cells for being stimulated and then transmitting the stimulus very rapidly within the body of animals.
12. Name the physical quantities denoted by:
    a. The slope of distance-time graph.
    b. The area under velocity-time graph.
    c. The slop of velocity-time graph.
13. Define uniformly accelerated motion and uniform motion. Also write any two equations of uniformly accelerated motion.
14. Write any two points of difference between mass and weight. Calculate the weight of an object of mass 10 kg on the earth.
15. Tabulate the difference between balanced and unbalanced forces. Write one example of each.
16. (a) A farmer saw long unwanted plants in his cultivated field. What are these plants commonly known as? Give one example for these.
    (b) List any four preventive methods to be followed to protect the cultivated field against it.
17. How can poultry farming be integrated with crop production? How improved poultry breed s are developed in poultry farming?
18. Name the levels of production practices in agriculture.
19. (a) How does a solution of sugar in water is different from a solution of starch in water with respect to :
    (i) Tyndall effect.
    (ii) Filterability
    (iii) Appearance.

(b) Name the technique used to separate the following:

(i) Salt from sea water

(ii) Cream from milk

(iii) Iron pins from sand.

20. (a) What happen to sugar when it is dissolved in water? Where does the sugar go? What information do you get about the nature of matter from the dissolution of sugar in water?

(b) Which type of compounds can be purified by sublimation?

21. (a) State the feature of cardiac muscles which make it unique?

(b) The tissue is under control of will? What is this type of tissue called? Name it.

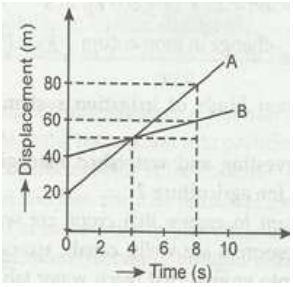
(c) What are ligaments? What do you expect to feel if they are over-stretched?

22. (a) Define average speed and average velocity.

(b) From displacement time graph shown in figure, find

(i) Velocity of A

(ii) Velocity of B.



23. Give reason for the following:

a. When a person jumps from a boat to shore, the boat moves backwards.

b. When a person fires a gun, he experience jerk in backwards.

c. State Newton's third law of motion.

24. (a) Explain four different kinds of irrigation systems adopted in India to supply water for agriculture.

(b) What is rainwater harvesting and watershed management? How is it useful for enhancing availability of water for agriculture?

Section B

25. Rekha added 1 or two drops of iodine solution to three test tube A, B, C containing 2 ml of food extract of various kinds. A dark blue colour appeared in test tube A and B. the correct order of food samples taken in three test tubes can be:

    (a) Rice, dal, potato (c) potato, rice, dal

    (b) Rice, potato, dal (d) dal, rice, potato

26. Identify the cell that contains starch:

    (a) Amyloplast (c) prokaryotic cell

    (b) Onion cell (d) Cheek cell

27. In a mixture of iron filing and sulphur powder and a compound iron sulphide?

    (a) Iron and iron sulphide are soluble in carbon disulphide.

    (b) Iron sulphide is soluble in carbon disulphide.

    (c) Sulphur is soluble in carbon disulphide.

    (d) Sulphur and iron sulphide are soluble in carbon disulphide.

28. Light and dark bands can be seen in case of:

    (a) Striated muscles

    (b) Smooth muscles.

    (c) Both cardiac and smooth muscles.

    (d) Both striated and smooth muscles.

29. When a piece of magnesium ribbon is brought near the flame of Bunsen burner, it is observed that:

    (a) tips of magnesium ribbon become red hot but it does not burn with a flame.

    (b) the magnesium ribbons burns with a dazzling whit flame.

    (c) the magnesium ribbons melts.

    (d) lot of smoke is produced.

30. Safranine is a reagent that is used to stain:

    (a) nucleus (c) plasma membrane

    (b) cytoplasm (d) cell wall

31. Dendrite are found in:

    (a) Striated muscles (c) parenchyma

    (b) nerve cells (d) sclerenchyma

32. A magnet is repeatedly moved closely over a mixture of iron powder and sulphur powder. Which of the following statement is true?
    (a) Iron powder is attracted.
    (b) Sulphur powder is left behind.
    (c) Black FeS will be formed.
    (d) Iron powder and sulphur powder are separated.
33. While doing a experiment to establish the relationship between weight of a rectangular wooden block lying on a horizontal table and minimum force required to just move it using spring balance. A student kept the block on wooden table and pulled it towards east, west, south and north direction. The force required to just move the block will be
    (a) Maximum in east direction.
    (b) Equal in all direction
    (c) Maximum in south direction
    (d) Minimum in west direction.
34. Out of sugar solution, salt solution, muddy water ans milk, chooses the colloidal solution. What kind of colloidal solution is it?
35. In experiment to determine the melting point of ice in laboratory, what form of ice should be used? When should the reading of thermometer be noted?
36. If m is the initial mass of raisins and M is the final mass of raisins after soaking in water. Calculate the percentage of absorption by raisins.

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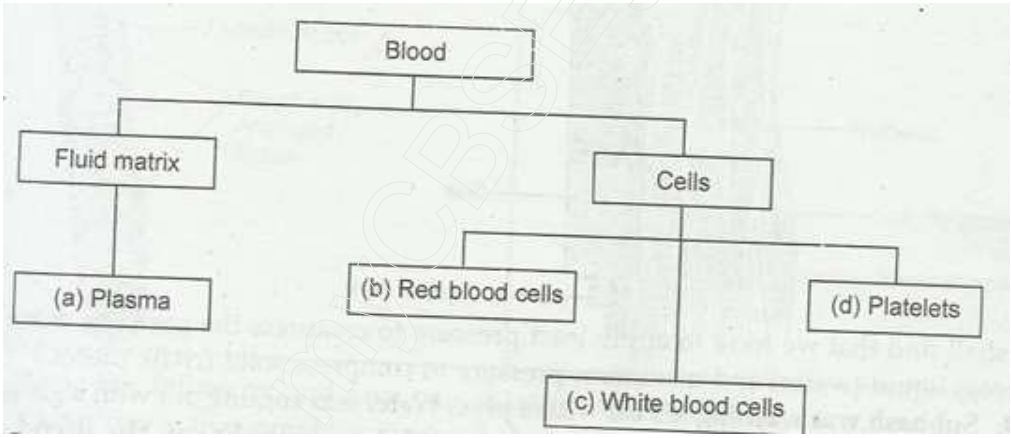
Answers

Section A

1. Nucleus and mitochondria.
2. When Ravi throws a heavy stone out of boat. The boat will move in opposite direction due to reverse momentum.
3. A process of crossing plants of two different varieties to produce a hybrid is called intervarietal hybridization.

   A process of crossing different species of the same genus in order to produce a hybrid is called interspecific hybridization.
4. Alcohols and water particles mix with each other and form a uniform mixture. Oil does not mix with water and forms a heterogeneous mixture. Oil forms a separate upper layer in the mixture.
5. 

6. (a) If r is reduced to $1/4^{th}$ of its previous value, the gravitational force becomes 16F.

   (b) If masses of both the objects are increased by three times, then the gravitational force becomes 9 F.
7. Take 50 ml of water in a measuring cylinder. Add 10 gram sodium chloride to it and stir with a glass rod to dissolve the solid. There is no change in the volume of the liquid after dissolving sodium chloride to it. This shows that particles of water have empty spaces in them.

8. Take three 100ml syringes and close their nozzles by rubber corks. Remove the pistons from all the syringes. Fill water in one syringe and piece of chalk in the second and nothing in the third syringe. Replace the pistons in the syringes and apply pressure.

   We observed that we have to apply least pressure to compress the gas, more pressure to compress liquid and maximum pressure to compress chalk piece.

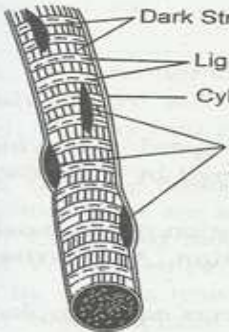
9. (a) providing clean water for drinking is really a costly affair. He was right in the statement.

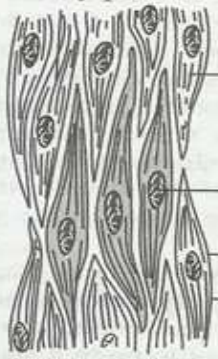
   (b) The different components of water purification unit are:

   Reservoir, sedimentation tank, loading tank, filtration tank, chlorination tank.

10.

Striated Muscle Fibres	*Smooth Muscle Fibres*
(1) They are long cylindrical cells having blunt ends.	(1) They are spindle shaped cells having pointed ends.
(2) They possess alternate light and dark bands.	(2) Striations are absent.
(3) The muscle fibre is multinucleate. Nuclei are oval in outline and occurs at periphery.	(3) The muscle fibre is uninucleate. Nucleus is centrally placed and oval in outline.





11. Collenchyma is a living permanent simple tissue which provides both mechanical strength as well as flexibility. The cells possess uneven pectocellulose thickening at the corners.

    Nerve cell of nervous tissue transmits impulses to various parts of the body. They are the structural and functional unit of nervous tissue. A neuron can be sensory, motor or relay neuron in nature.

    Muscular tissue is a contractile tissue responsible for movement. Cells of the muscular tissue are called muscle fibres.

12. (a) The slope of the distance-time graph gives the value of speed of moving object.

    (b) The area under velocity-time graph gives the distance travellled.

    (c) the slope of velocity-time graph gives the value of acceleration of the moving body.

13. An object is said to be in a state of uniform motion if it covers equal displacements in equal intervals of time.

An object is said to be in uniformly accelerated motion if the velocity of the moving object changes by equal amounts in equal intervals of time.

Two equations of motions are:

$V = u + at$

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

14. Mass of an object is a measure of its inertia and has a unit kg. Weight of an object is the force acting on it due to gravity that W= mg. S.I unit of weight is N.

Mass of object, m = 10 kg, g = 10 m/s^2.

Weight of object on earth = 10 x 10 = 100 N.

Weight of object on moon = 100/6 = 16.67 N.

15.

Balanced force	Unbalanced force
1. Forces are said to be balanced force if their resultant force is zero.	1. Force are said to be unbalanced forces if their net effect is non-zero.
2. It does not produce any acceleration and object remains in its state of rest or uniform linear motion.	2. It produce an acceleration and object does not remain in its state of rest or uniform linear motion.

16. (a) Long unwanted plants in the cultivated field are known as weeds.
Ex. Amaranthus, Chenopodium.

(b) Cultivated field can be protected by manually removing, weeding of soil before sowing seeds and using weedicides. Biological control of weeds is done by using insects that feeds on weeds and destroy them.

17. Integrated farming practices means combining agriculture with livestock, poultry, fisheries, beekeeping etc. It increases the income of people involved in agriculture as well as combat the problem of hunger and sustained livelihood.

Improvement in poultry breeds involves cross breeding the indigenous varieties with exotic breeds. The improved varieties are developed for the following desirable traits:

(i) to improve the quality and quantity of chicks.

(ii) to develop dwarf broiler parent for commercial chick production.

(iii) tolerance of high temperature

(iv) low maintenance requirements.

18. Production practices in agriculture involve three components namely nutrient management, irrigation and cropping pattern. It controls the various aspects of crop production so as to obtain the maximum and the best yield.

(a) Nutrient management involves the selecting, timing and amount of nutrient supply to the crops.

(b) Irrigation is the process of supplying water to crop plants through human efforts by means of canals, wells, tube wells etc.

(c) Cropping pattern involves obtaining maximum benefits from the same piece of land.

19. (a) (i) Sugar solution gives the Tyndall effect but starch solution does not.

(ii) Sugar solution is filterable but starch solution is not filterable.

(iii) Sugar solution is transparent but the starch solution is translucent.

(b) (i) Evaporation and crystallization.

(ii) Centrifugation.

(iii) Magnetic separation.

20. (a) When sugar is dissolved in water, its crystals breaks into tiny particles. The sugar particles go into the spaces between the particles of water and mix with them to form sugar solution. The sugar particles occupies the space between water particles.

From the dissolution of sugar in water, we infer that

(i) The matter consisting of sugar and water is made up of small particles.

(ii) The particles of matter have space between them.

The compound which can undergo sublimation themselves but contain impurities which cannot sublime can be purified by the process of sublimation.

21. (i) Cardiac muscles are involuntary, striated and non-fatigue muscles which is located in the walls of heart to perform rhythmic contraction and relaxation throughout life. The cells are uninucleate, small and cylindrical with broad ends.

(ii) The tissue which is under the control of will and work as per the requirement of body is striated or skeletal muscular tissue. They are voluntary in nature.

(iii) Ligaments are cord likes dense yellow fibrous connective tissue of considerable strength and high elasticity. They binds a bone with another bone. Because of elasticity a ligament allows bending and rotation of over joint.

22. (a) The average speed of an object is defined as the ratio of total distance covered by the object and total time taken by it to cover that distance.

The average velocity of an object is defined as the ratio of net displacement of the object and the total time for that displacement.

(b) From the given graph

Velocity of A = displacement/time = 80- 20 m/8-0s = 7.5 m/s

Velocity of B = 60-40m/8-0s = 2.5 m/s

The meeting point of A and B is at 50 m and at 4 s.

23. (a) (i) When a person jumps from a boat to the shore, the boat moves backwards due to reaction force according to third law of motion.

(ii) When a person fires a gun, the bullet moves in forward direction and in turn the gun recoils in backward direction. Due to recoil motion of gun person experience an jerk in backward direction.

(b) Third law states that to every action there is an equal and opposite reaction. The action and reaction are equal in force but opposite in direction.

(c) Mass of object, m = 20 kg. Initial velocity, u= 36 km/h = 10 m/s.

Final velocity, v= 54 km/h = 15m/s. time, t = 25 s.

Initial momentum = mu = 20x 10 200 kg m/s.

Final momentum = mv = 20x 15 = 300 kg m/s.

Magnitude of force = change in momentum/time = 300 – 200/25 = 4N.

24. **(a)** Irrigation is important to ensure that crops get water at the right stages during growth. The important water sources are wells, canals, rivers and tanks.

Wells- they are shafts sunk into ground that reach water table and are used to draw water. It may be tube wells or dug wells.

Canals- they form a extensive irrigation system, where in they get water from large rivers. The main canal is divided into branch canals and further into distributaries to irrigate the field.

Rivers- in area where canal flow in insufficient or irregular due to inadequate reservoir release, the water is directly drawn from river for irrigation.

(b) Rain water harvesting is a method which does not allow main water to go waste. It is collected and used for recharging ground water by sinking deep drain pipes. It can be poured into wells or used for filling ponds in low level area. In water shed management,

small check dams are built up in water shed area to increase percolation of water into ground, reduce flow of main water and prevent soil erosion.

Section B

25. (b)
26. (b)
27. (c)
28. (d)
29. (b)
30. (a)
31. (b)
32. (c)
33. (b)
34. Milk, milk is a colloid of liquid in liquid.
35. Pure crushed ice should be used so that the thermometer can be immersed into it. Reading should be noted as soon as ice starts melting.
36. Percentage of water absorbed by resins = (M-m)/m x 100.