
CBSE SAMPLE PAPER – 02 (Solved)
SUMMATIVE ASSESSMENT – I
Class-IX (SCIENCE)

Time: 3 Hrs

MM: 90

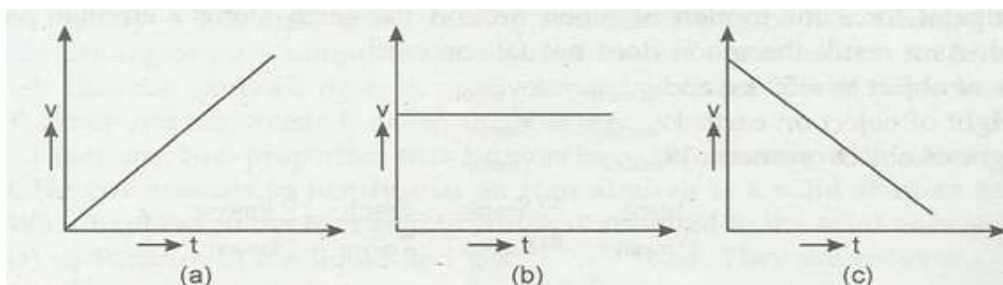
General Instructions

- (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. Under what condition will the magnitude of the displacement be equal to the distance?
 - 2. Which part of the plant cell permits it to withstand very dilute external medium without bursting?
 - 3. Name the revolution which has led to better and more efficient use as well as availability of milk.
 - 4. Which state of matter have
 - a. Maximum force of attraction between the particles?
 - b. Minimum spaces in between constituent particles.
 - 5. Name the tissue that :
 - a. Connects muscles to bone in humans.
 - b. Forms inner lining of alveoli.
 - c. Stores fat in the body.
 - d. Transport water and minerals in plants.
 - 6. Calculate the force of gravity between two objects of masses 50 kg and 120 kg kept at a distance of 10 m. ($G = 6.7 \times 10^{-11} \text{Nm}^2/\text{kg}^2$)
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7. List any three properties on the basis of which a colloidal solution can be recognized?
8. Give reason for the following:
- Camphor disappears if kept in air for a few days.
 - Wet clothes do not dry easily on rainy days.
 - We sweat more on a humid day.
9. Khushi's mother always squeezes water from wet clothes in the spinner of washing machine and then uses it to clean the floor.
- Write the principle of technique used in above process?
 - Write one more application of this technique.
 - What value you learn from Khushi mother?
10. Write two distinguishing features between the muscles present in the alimentary canal and limbs of man. Draw labelled diagrams of the two kinds of muscles.
11. Name the following and give one characteristic of each:
- The waxy substance coating the epidermis in desert plants.
 - Suicidal bags of the cells.
 - Fat storing cells below the skin and between internal organs.
12. What type of force is acting in the cases given below:

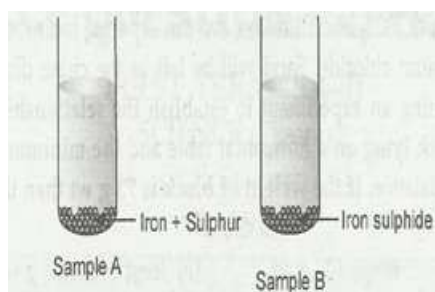


13. If the time taken to bring a ball to rest from a certain velocity v is reduced to half. What will be the changes in values of:
- Initial and final momentum.
 - Change in momentum.
 - Rate of change in momentum.
14. A powerful motorcycle can accelerate from rest to 28 m/s in only 4 s.
- What is its average acceleration?
 - How far does it travel in that time?
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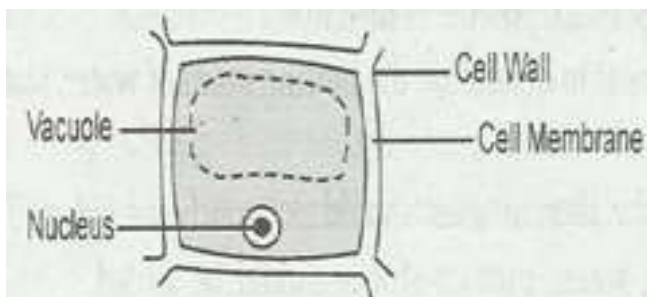
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15. The moon is acted by gravitational pull of earth. Still it does not fall on earth. Explain why?
Determine the ratio of weight of an object of mass 50 kg on earth and on moon.
 16. Mention the three aspects of maintaining livestock.
 17. Application of fertilizers increases the crop productivity but it destroys the soil fertility.
State three disadvantages of using fertilizers.
 18. Mention two ways of obtaining fish. Name two ways by which the marine fish captures is done.
 19. (a) List any two properties that liquids have in common with gases.
(b) Give two reasons to justify that an iron almirah is a solid.
(c) What happen to the heat energy which is supplied tot eh solid once it starts melting.
 20. Two students, A and B got the mixture of iron filings and sulphur. A heated this mixture strongly but B kept it as such. They divided the mixture further into three parts and did the same tests. Tabulate t eh observation when.
(a) Both added HCl to a part of their mixture.
(b) Both added carbon disulphide to another mixture.
(c) Both used magnet to separate its constituents on the last part of the mixture.
 21. Justify by giving two points that cartilage is a tissue. What is its matrix made of? Where are these tissues found in our body?
 22. A ball thrown upwards reaches a point P of its path at the end of 4 seconds and the highest point Q at the end o 12 seconds. After how many seconds from the start will it reach the point P again?
Draw the distance time graph of:
 - (i) When body is stationary.
 - (ii) When a body is moving with uniform speed.
 - (iii) When a body is moving with non-uniform speed.
 23. When a card placed above a glass having a coin placed on it is flicked with push, the coin fall into glass. Why
 - (i) State the law involved in this case.
 - (ii) Give another example that shows this law?
 24. What is genetic manipulation? What are the products of genetic manipulation? What major agronomic traits are incorporated by this technique?
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Section B

25. To observe starch granules in potato under a microscope, freshly cut surface of potato was pressed on a slide. The stain that will show starch granules clearly is:
- (a) Acetocarmine (b) Iodine
(b) Safranine (d) Eosine
26. Which one of the following chemicals gives a blue-black colour with starch?
- (a) Fluorine (b) Chlorine
(b) Iodine (d) Bromine.
27. X is a mixture of iron filings and sulphur. Y is a product obtained by heating a mixture X and crushing it to a fine powder. On bringing 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.
(d) Both X and Y are not attracted.
28. Sample A is a mixture of iron filing and sulphur powder. Sample B is a compound of iron sulphide. Pinki was asked to study the effect of heat on both sample A and B. Which of the following observations was incorrect?

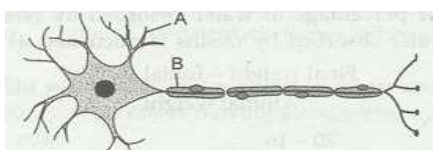


- (a) Yellow coloured Sulphur from sample A start melting.
(b) Sample A mixture glows.
(c) No effect of heat on sample B
(d) Colour of sample B changes from black to yellow.
29. The colour of solution obtained, when iron nails are kept immersed in copper sulphate solution is:
- (a) Dark blue (c) Dark green
(b) Pale green (d) Brown
30. The part that has been incorrectly labelled in the diagram is
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- (a) Nucleus
- (b) Cell wall
- (c) Vacuole
- (d) Cell membrane

31. In the following diagram, the correct labeling for A and B is:



- (a) A- nucleus, B- dendrite
- (b) A-dendrite, B- Axon
- (c) A-axon, B-nucleus
- (d) A-dendrite, B-nucleus.

32. A mixture contains only Iodine, Ammonium chloride and Sand. Only Iodine and Ammonium chloride sublime. Only Iodine dissolves in carbon tetrachloride. How will you separate the three components? Sequence of steps will be

- (a) By sublimation, addition of CCl_4 .
- (b) Addition of CCl_4 , filtration, sublimation
- (c) Sublimation, addition of water and filtration.
- (d) Evaporation, distillation, crystallization.

33. While performing an experiment to establish the relationship between weight of a rectangular wooden block lying on a horizontal table and the minimum force required to just move it using a spring balance. If the weight of block is 73 g wt then the most suitable spring balance will be of:

- (a) Least count 1 g wt, range 100 g wt.
- (b) Least count 2.5 g wt, range 500 g wt.
- (c) Least count 2 g wt, range 400 g wt.
- (d) Least count 10 g wt, range 100 g wt.

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34. Shruti was asked to prepare four separate mixture in four beakers A, B, C,D by mixing sugar, fine sand, thin paste of starch and chalk powder respectively in water and then categories each as stable or unstable. What will be the correct categorization.
35. In experiment to demonstrate the boiling point of water, state reason for following precautions
- (a) The bulb of thermometer should not touch the sides of the beaker.
 - (b) Pumice stone should be added while boiling water.
36. In an experiment to calculate the percentage of water absorbed by raisins a student recorded the mass of dry raisins as 16 g and the mass of raisins after soaking in water for four hours as 20 g. What is the percentage of water absorbed by raisins?
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ANSWERS

1. If the motion is along a straight line without a change in its direction.
 2. Cell wall.
 3. White revolution.
 4. (a) Between particles in solid have maximum force of attraction.
(b) The minimum space is between particles in solid state.
 5. (a) Tendon
(b) Simple squamous epithelium.
(c) Adipose tissue.
(d) Xylem.
 6. Here, $m_1 = 50 \text{ kg}$, $m_2 = 120 \text{ kg}$, $d = 10 \text{ m}$ and $G = 6.7 \times 10^{-11} \text{ Nm}^2/\text{kg}^2$.
 $F = Gm_1m_2/d^2 = (6.7 \times 10^{-11}) \times 50 \times 120 / 10^2 = 4.02 \times 10^{-9} \text{ N}$.
 7. (a) They are heterogeneous.
(b) They form a stable solution.
(c) They scatter light.
 8. (a) Camphor has the property of subliming. It converts directly from the solid to vapour phase.
(b) Evaporation does not take fast because there are water vapours in the air.
(c) The sweat does not evaporate from the body because there are water vapours in the air.
 9. (a) The technique of centrifugation is used in the process.
(b) This technique is used to extract cream from the milk.
(c) Wet clothes contain more water. The floor does not dry quickly with wet cloth. She uses the principle of centrifugation to dry the clothes and then use it to dry the floor.
 10. Muscles present in alimentary canal are smooth muscles where as striated or skeletal muscles are located in the limbs of man.
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<u>Smooth muscles</u>	<u>Striated muscles</u>
(i) The fibres are elongated and spindle shaped with pointed ends.	(i) They are long cylindrical and have blunt ends.
(ii) Striations are absent.	(ii) They possess striations or alternate light and dark bands.
(iii) Muscles fibre is uninucleate.	(iii) The muscles fibre is multinucleate .

11. (a) Cutin is the waxy coating on the epidermis of desert plants. It is waterproof in nature and prevents loss of water by the process of transpiration.
- (b) Lysosomes are the suicidal bags of the cells as they contain hydrolytic digestive enzymes capable of breaking down all organic material. They help the cell to clean by digesting any foreign material as well as worn out cell organells.
- (c) Adipocytes are fat storing cells below the skin and between internal organs. Storage of fat globules also lets it act s as insulator.
12. (a) Represent a uniformly accelerated motion.
- (b) Uniform linear motion.
- (c) Uniformly retarded motion.
13. (a) Initial momentum of ball remain unchanged. final momentum also remain unchanged.
- (b) change of momentum of ball remain unchanged.
- (c) The new rate of change in momentum is twice the original rate of change in momentum.
14. Initial velocity, $u=0$, final velocity $v= 28 \text{ m/s}$, time, $t= 4 \text{ s}$.
- (a) Average acceleration $= \frac{v-u}{t} = \frac{28-0}{4} = 7 \text{ m/s}^2$.
- (b) $s= ut + \frac{1}{2} at^2 = 0 \times 4 + \frac{1}{2} \times 7 \times 4^2 = 56\text{m}$.
15. The moon is acted by gravitational pull of earth and this force is spent in providing required centripetal force for motion of moon around the earth along a circular path with a constant speed. As a result the moon does not fall on earth.
Here, the mass of object $m= 50 \text{ kg}$.
Ratio of weight of an object on earth and moon $= 6:1$.
16. Management of animal livestock includes the following three aspects:

Feeding- The nutrients needed for the growth, development and general maintenance of the body.

Rearing- Looking after the health of the animals as well as production of clean milk.

Breeding- Cross breeding of indigenous variety with exotic breed in order to produce good quality, high yielding breeds.

17. Fertilizers provide various essential nutrients like nitrogen, phosphorus and potassium to increase the crop productivity. But continuous use of fertilizers destroys soil fertility by changing the soil chemistry, killing the microbes in the soil and dehydration and aeration of the soil. So, a fertilizer in long term harms the soil.

18. Fishing can be done by two ways namely capture and culture in marine as well as fresh water ecosystem.

Capture fishery_ The fish is caught from natural waters both marine and inland. Modern technology is adopted in capturing the fish and its storage before marketing. It includes echo sounders and satellite receptors.

Culture fishery_ It is cultivating, rearing and harvesting of fish. Culture fishery is also called fish farming. Culture of marine fin fishes, shell fishes and sea weeds is called mariculture.

19. a. Particles in liquid and gas are not fixed. They are moving. They do not have no fixed shape.
- b. Iron almirah has a fixed shape and fixed volume. It cannot be compressed. So iron almirah is solid.
- c. The heat energy is used to increase the kinetic energy of the particles once it start melting.

	Student A	Student B
Addition of HCl.	The matter reacted and a rotting egg smell came out.	The matter reacted and a gas came out which burn with pop sound.
Addition of carbon disulphide.	The matter did not dissolve.	The sulphur present in matter dissolve.
Use of magnet	There was no effect.	Iron present in matter get attracted.

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20. Cartilage is firm but flexible supportive connective tissue in which solid matrix has fluid filled lacunae having 1-4 living cells called chondrocytes. It forms the soft endoskeleton of the body thereby provides support and flexibility to various body parts.
- The matrix of cartilage is made up of sugars as well as protein complex chondrin which is secreted by chondrocytes.
- Cartilage occurs in nasal septum, pinna, epiglottis, larynx etc.
21. Let the ball thrown upwards from ground reaches a point P after a time $t_1 = 4\text{ s}$. and highest point Q at a time $t_2 = 12\text{ s}$.
- The distance covered by ball = PQ and time taken = 8 s.
- Ball will reach the point P again after a time t_3 from the start.
- $T_3 = 12 + 8 = 20\text{ s}$.
22. (a) We observe that on flicking the card moves in the direction of forward push but the coin falls in the tumbler itself.
- Initially the card and coin were in a state of rest. On flicking the card with a push the card comes in a state of motion and moves ahead. However, the coin retains its rest position on account of the inertia of rest and fall into the glass tumbler.
- (b) The law involved is the law of inertia.
- (c) Our observation will remain the same if the above coin is replaced by a heavy five five rupee coins.
23. Genetic manipulation is a technology by which incorporation of new gene for various traits from other organism into the crop variety so as to bring desired changes. It is carried out through hybridization, mutation breeding, DNA recombinant technology. The major agronomic traits that are incorporated by this technology are:
- Higher yielding- to increase productivity.
 - Improved quality.
 - Biotic and abiotic resistance
 - Wider adaptability
 - Change in maturity duration
 - Desirable agronomic traits.
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Section B

24. (b)
25. (c)
26. (b)
27. (d)
28. (c)
29. (a)
30. (b)
31. (b)
32. (a)
33. Beaker A- stable
Beaker B- unstable
Beaker C- stable
Beaker D- unstable.
34. (a) Sides of a beaker could be at higher temperature.
(b) Pumice stones prevent the bumping of water.
36. Percentage of water absorbed = (final weight- initial weight)/ initial weight x100
= $\frac{20-16}{16} \times 100$
= $\frac{4}{16} \times 100$
= $\frac{400}{16}$
= 25%,
-