



APEEJAY SCHOOL, PANCHSHEEL PARK

Class - IX

Subject - Science

MIDTERM EXAMINATION (2024-25)

Name of the student:

Time Allowed: 3 hr

Date:

M.M.:80

General Instructions:

Read the following instructions very carefully and follow them:

- (i) This question paper comprises 39 questions. All questions are compulsory.
- (ii) This question paper is divided into five sections - A, B, C, D and E.
- (iii) Section A - Question No. 1 to 20 are multiple choice questions. Each question carries 1 mark.
- (iv) Section B - Question No. 21 to 26 are very short answer type questions. Each question carries 2 marks. Answer to these questions should be in the range of 30 to 50 words.
- (v) Section C - Question No. 27 to 33 are short answer type questions. Each question carries 3 marks. Answer to these questions should be in the range of 50 to 80 words.
- (vi) Section D - Question No. 34 to 36 are long answer type questions. Each question carries 5 marks. Answer to these questions should be in the range of 80 to 120 words.
- (vii) Section E - Question No. 37 to 39 are 3 source-based/case-based questions carrying 4 marks each.
- (viii) There is no overall choice. However, an internal choice has been provided in some sections. Only one of the alternatives has to be attempted in such questions.

SECTION -A

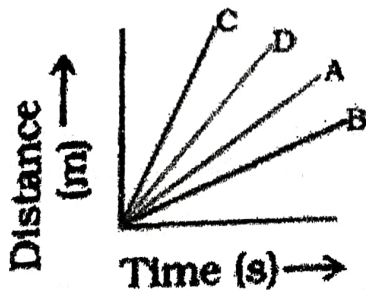
(1x20 = 20)

Select and write the most appropriate option out of the four options given for each of the Question no. 1-20. There is no negative mark for the incorrect response.

1. Which of the following will show "Tyndall effect" ?
(a) Saline (b) Milk (c) Copper sulphate in water (d) tincture of Iodine
2. Which of the following is a chemical change?
(a) Bending of Iron Rod (b) Burning of wood
(c) Sawing of wood (d) Hammering of a nail into a piece of wood
3. Which of the following statement signifies "10 percent glucose in water by mass" ?
(a) 10 grams of glucose dissolved in 90 grams of water.
(b) 10 grams of glucose dissolved in 1000 grams of water.
(c) 20 grams of glucose dissolved in 200 grams of water.
(d) 20 grams of glucose dissolved in 90 grams of water.
4. Recovery of salt from salt solution in water can be done by:
(a) Evaporation (b) Distillation (c) Filtration (d) Sublimation
5. Which of the following represents a correct set of observations for a mixture of common salt and water?

Transparency	Stability	Filtration
(a) Transparent	Unstable	No residue
(b) Transparent	Stable	No residue
(c) Translucent	Stable	No residue
(d) Opaque	Unstable	Residue
6. An object of mass 2 Kg is sliding with a velocity of 4 m/s on a frictionless horizontal table. The force required to keep the object moving with the same velocity is
(a) 32 N (b) 0 N (c) 2 (d) 8 N

7. In all the three states of water, (i.e. ice, liquid and vapour)
- (a) only the physical state is different. (b) the physical state remains same
 (c) Chemical composition is different (d) chemical composition and physical state both changes
8. When heat is constantly supplied by a burner to boiling water, then the temperature of the water during vaporization:
- (a) Rises very slowly (b) Rises rapidly until steam is produced
 (c) First rises and then becomes constant (d) Does not rise at all
9. Which of the following is true for the third law of motion?
- (a) Action-Reaction pair always acts on the same body.
 (b) Action-Reaction forces act on different bodies in opposite directions
 (c) Action-Reaction pairs have the same magnitudes and directions
 (d) Action-Reaction forces act on a body at normal to each other
10. A particle is moving in a circular path of radius r . The displacement after half a circle would be:
- (a) Zero (b) πr (c) $2r$ (d) $2\pi r$
11. Four cars A, B, C and D are moving on a levelled road. Their distance versus time graphs are shown in figure below. Choose the correct statement



- (a) Car A is faster than car D. (b) Car B is the slowest.
 (c) Car D is faster than car C. (d) Car C is the slowest.
12. Survival of plants in terrestrial environment has been made possible by the presence of
- (a) Intercalary meristem (b) Conducting tissue
 (c) Apical meristem (d) Parenchymatous tissue
13. The cell organelle involved in forming complex sugars from simple sugars are
- (a) endoplasmic reticulum (b) ribosomes
 (c) plastids (d) Golgi apparatus
14. Which cell does not have perforated cell wall?
- (a) Tracheids (b) Companion cell
 (c) Sieve tubes (d) vessels
15. A nail is inserted in the trunk of a tree at a height of 1 meter from the ground level. After three years nail will
- (a) move downward (b) move upward
 (c) remain at the same position (d) move side ways
16. Mitosis in plants, occurs
- (a) In meristematic tissue (b) During the growth of leaves, flowers and fruits
 (c) Both (a) and (b) (d) Neither (a) nor (b)

For Q. Nos. 17 to 20, two statements are given - One labelled as Assertion (A) and the other labelled as Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
- (b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
- (c) Assertion (A) is true, but Reason (R) is false.
- (d) Assertion (A) is false, but Reason (R) is true.
- Q 17. Assertion (A): A table cloth can be pulled from a table without dislodging the dishes.
Reason (R): To every action there is an equal and opposite reaction.
- C 18. Assertion (A): Parenchyma tissue helps in the storage of food in plants.
Reason (R): Parenchyma tissue is the main site of photosynthesis
- C 19. Assertion (A): Naphthalene does not leave any residue when kept open for some time.
Reason (R): The conversion of solid directly into gas is called condensation.
- Q 20. Assertion (A): Leucoplast are coloured plastids present in the cell.
Reason (R): They are mostly present in the storage cells of roots and underground stems.

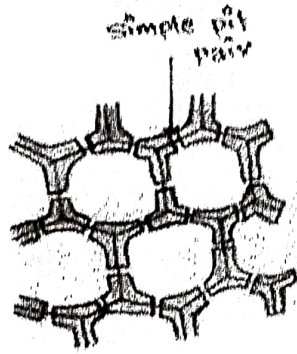
SECTION-B

21. Give reasons: (2x1=2)
- (a) A karate player breaks a slab of ice with a single blow.
- (b) Glass ware is covered with paper and straw while transportation.
22. "There will be no plant life if chloroplast does not exist." Justify this statement. (2)
23. (a) We soak kidney beans in water overnight. Name the scientific phenomena that will take place when beans are soaked. (2x1=2)
- (b) Why did Rahul's mother cut the vegetables into small pieces and put them in sun for few hours before making a pickle?
24. Account for the following: (2x1=2)
- (a) Hydrogen is considered an element.
- (b) Water is regarded as compound.
25. An astronaut has 80 kg mass on earth. (2x1=2)
- (a) What is his weight on earth?
- (b) What will be his weight on mars, where $g=3.7 \text{ m/s}^2$.
26. How does fungi and bacteria withstand much greater changes in the surrounding medium than animal cells? (2)

SECTION C

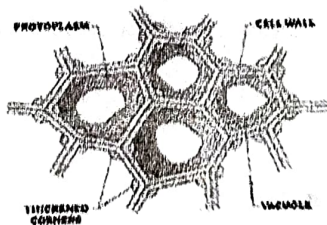
27. What is meant by saturated solution? Calculate the concentration of a solution containing 12 g of urea in 160 g of solution. (3)
28. State the universal law of gravitation. What happens to the gravitational force between two objects, if
- (a) The mass of one object is doubled? (3)
- (b) The distance between the objects is doubled?
29. Classify the following into elements, compounds and mixtures. (3)
- (a) Silver (b) Calcium carbonate (c) Silicon (d) Coal (e) Carbon dioxide (f) Blood
30. (a) A person has a rubber ball and a stone of the same size. Which of the following has more inertia & why? (3)
- (b) An object gets the velocity of 10 m/sec after applying force of 500 N for 5 sec. If the mass of object is equal to 1000 kg what was its velocity before applying the force?

31. (a) Ramit was asked to draw the diagram of sclerenchyma as seen in longitudinal section and label is given below. Point out the mistake in the figure.



(b) Are the cells of sclerenchyma dead or living? Name at least two plants whose sclerenchyma fibres are commercially used.

COLLENCHYMA

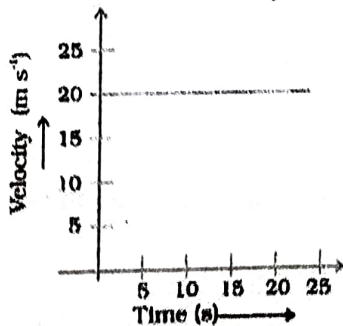


OR

(a) You have been asked to study the given slide of plant tissue. Give two characters that enable you to identify it as collenchyma.

(b) What is the main function of collenchyma?

32. The velocity-time graph shows the motion of a cyclist. Find (a) its acceleration (b) its velocity and (c) the distance covered by the cyclist in 15 seconds. (3)

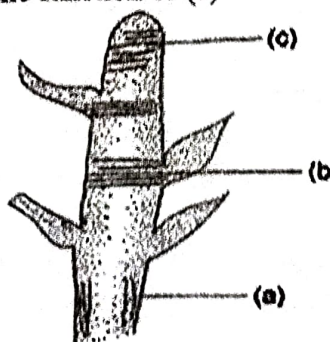


33. Observe the figure and answer the following questions: (3)

(a) What does this figure show?

(b) Label (a) and (b)

(c) Write the function of (c)



SECTION -D

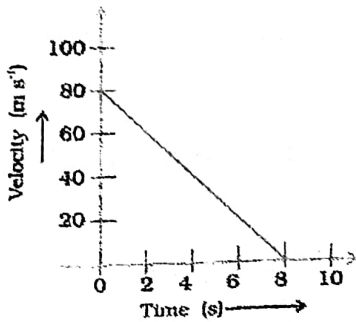
(5)

34. (a) List two points of differences between homogeneous and heterogeneous mixtures.
 (b) Give one example for each of the following mixtures:
 (i) Solid/solid (homogeneous) (ii) Solid/solid (heterogeneous)
 (iii) Liquid/liquid (homogeneous) (iv) Liquid/liquid (heterogeneous)
 (v) Gas/liquid (homogeneous) (vi) solid/liquid (homogeneous)

OR

- (a) How are sol, solution and suspension different from each other? Write any three differences between them.
 (b) Why is sodium considered as metal even though it is soft? Write two points.

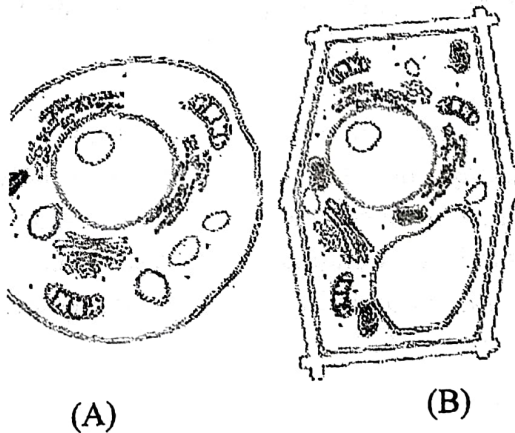
35. (a) Using second law of motion, derive the relation between force and acceleration. (5)
 (b) Velocity versus time graph of a ball of mass 50 g rolling on a concrete floor is shown in figure.
 Calculate the acceleration and frictional force of the floor on the ball.



OR

- (a) Derive the unit of force using the second law of motion.
 (b) An 8000 kg engine pulls a train of 5 wagons, each of 2000 kg, along a horizontal track. If the engine exerts a force of 40000 N and the track offers a friction force of 5000 N, then calculate:
 (i) the net accelerating force and (ii) the acceleration of the train. (5)
36. (a) Define the term plasmolysis.
 (b) Make a well labelled diagram of prokaryotic cell.
 (c) List one similarity and one dissimilarity between mitochondria and plastids.

OR



(A)

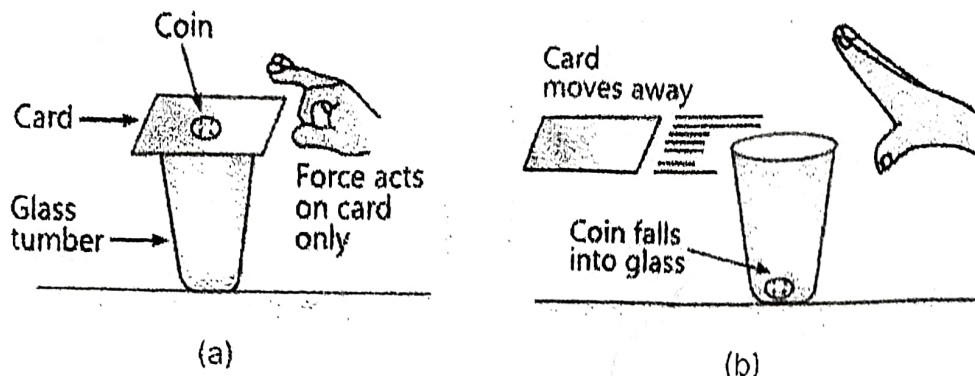
(B)

- (a) Name the given diagrams (A) and (B)
 (b) Label any two parts in 'B' which are not present in 'A' and also write their function.
 (c) Why the nucleus shifted to one side in figure 'B'?

SECTION-E

Q. Nos. 37-39 are source-based/case-based questions with 2 to 3 short sub- parts. Internal choice is provided in one of these sub-parts:

37. An experiment in class with the setup as shown in the figure below. (4)



A five-rupee coin is set on a stiff card covering an empty glass tumbler standing on a table. He then flicks the card hard with his fingers.

- (a) Explain the reason for the observation in the above experiment.
- (b) If the above coin is replaced by a heavy ten-rupee coin, what will be your observation? Give reason.
- (c) Explain the law involved in this case.

OR

- (c) Explain why some of the leaves may get detached from a tree if we vigorously shake its branch.

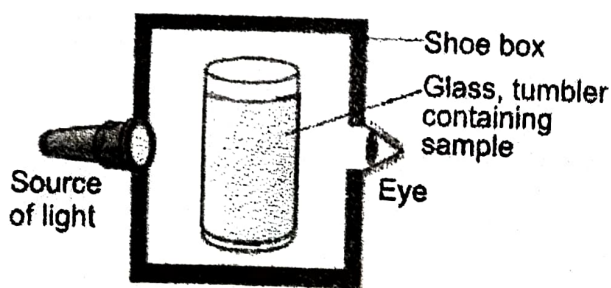
38. In plants, tissue originate from meristematic tissues and these become permanent at fixed positions in plant body. They are made up of mature cells that had undergone growth and differentiation. Cells of these permanent tissues possess definite shape, size and function. They have lost their power of division and may be living or dead. Such tissues are classified as simple and complex tissue. (4)

- (a) What is differentiation?
- (b) Water hyacinth floats on water surface. How?
- (c) Give two differences between two types of vascular tissues.

OR

- (c) Draw a well labelled diagram of the structure which protects the plant body against the invasion of parasite.

39. A group of students took an old shoe box and covered it with a black paper from all sides. They fixed a source of light (a torch) at one end of the box by making a hole in it and made another hole on the other side to view the light. They placed starch solution (starch and water) contained in a tumbler in the box as shown in the figure below. They were amazed to see that starch solution (starch and water) taken in the tumbler was illuminated. They tried the same activity by taking a salt solution but found that light simply passed through it. (4)



(a) Which phenomena is observed when starch solution is illuminated?

(b) Same results were not observed with a salt solution. Explain.

(c) Can you suggest two more solutions which would show the same effect as shown by the starch solution?

(d) Give one example of above phenomenon observed in our surroundings.

OR

(d) Smoke and fog both are aerosols. In what way are they different?