

Science

Sample Question Paper 4 (Class 9) (Term – 1) (Session 2021-22)

Time: 1 hour 30 minutes

Number of Questions: 50

General Instructions

1. The Question Paper contains three sections.
2. Section A has 24 questions, Attempt any 20 questions.
3. Section B has 24 questions, Attempt any 20 questions.
4. Section C has 12 questions, Attempt any 10 questions.
5. All questions carry equal marks.
6. There is no negative marking.

SECTION - A

Section - A consists of 24 questions. Attempt any 20 questions from this section.

The first attempted 20 questions would be evaluated.

1. A mixture of sulphur and carbon disulphide is
(A) Heterogeneous and shows Tyndall effect.
(B) Homogeneous and shows Tyndall effect.
(C) Heterogeneous and does not show Tyndall effect.
(D) Homogeneous and does not show Tyndall effect.
2. Tincture of iodine has antiseptic properties. This solution is made by dissolving
(A) Iodine in potassium iodide
(B) Iodine in Vaseline
(C) Iodine in water
(D) Iodine in alcohol
3. The cell wall of which out of these is not made up of cellulose?
(A) Bacteria
(B) Hydrilla
(C) Mango tree
(D) Cactus
4. Which of the following are physical changes?
(i) Melting of iron metal
(ii) Rusting of iron
(iii) Bending of an iron rod
(iv) Drawing a wire of iron metal
(A) (i), (ii) and (iii)
(B) (i), (ii) and (iv)
(C) (i), (iii) and (iv)
(D) (ii), (iii) and (iv)
5. Which of the following helps in repair of tissue and fills up the space inside the organ?
(A) Tendon
(B) Adipose tissue
(C) Areolar
(D) Cartilage
6. The muscular tissue which functions throughout the life continuously without fatigue is
(A) Skeletal muscle
(B) Cardiac muscle
(C) Smooth muscle
(D) Voluntary muscle
7. Choose the wrong statement.
(A) The nature of matrix differs according to the function of the tissue.
(B) Fats are stored below the skin and in between the internal organs.
(C) Epithelial tissues have intercellular spaces between them.
(D) Cells of striated muscles are multinucleate and unbranched.

8. A nail is inserted in the trunk of a tree at a height of 1 metre from the ground level. After 3 years the nail will

- (A) Move downwards
- (B) Move upwards
- (C) Remain at the same position
- (D) Move sideways.

9. Parenchyma cells are

- (A) Relatively unspecified and thin walled.
- (B) Thick walled and specialized.
- (C) Lignified.
- (D) None of the above.

10. Which is not a function of epidermis?

- (A) Protection from adverse condition.
- (B) Gaseous exchange.
- (C) Conduction of water.
- (D) Transpiration.

11. Plasmolysis in a plant cell is defined as

- (A) Break down (lysis) of plasma membrane in hypotonic medium.
- (B) Shrinkage of cytoplasm in hypertonic medium.
- (C) Shrinkage of nucleoplasm.
- (D) None of the above.

12. Which of the following are covered by a single membrane?

- (A) Mitochondria
- (B) Vacuole
- (C) Lysosome
- (D) Both (B) and (C)

13. Find out the false sentences.

- (A) Golgi apparatus is involved with the formation of lysosomes.
- (B) Nucleus, mitochondria, and plastid have DNA; hence they are able to make their own structural proteins.
- (C) Mitochondria is said to be the power house of the cell as ATP is generated in them.
- (D) Cytoplasm is called as protoplasm.

14. Rusting of an article made up of iron is called

- (A) Corrosion and it is a physical as well as chemical change.
- (B) Dissolution and it is a physical change.
- (C) Corrosion and it is a chemical change.
- (D) Dissolution and it is a chemical change.

15. Silver nitrate solution is used to study

- (A) Endoplasmic reticulum
- (B) Golgi apparatus
- (C) Nucleus
- (D) Mitochondria

16. Organelle other than nucleus, containing DNA is

- (A) Endoplasmic reticulum
- (B) Golgi apparatus
- (C) Mitochondria
- (D) Lysosome

17. The numerical ratio of displacement and distance for a moving object is:

- (A) Always less than 1.
- (B) Always equal to 1.
- (C) Always more than 1.
- (D) Equal or less than 1.

18. Suppose a boy is enjoying a ride on a merry-go-round which is moving with a constant speed of 10 ms^{-1} . It implies that the boy is:

- (A) At rest.
- (B) Moving with no acceleration.
- (C) In accelerated motion.
- (D) Moving with uniform velocity.



19. Slope of a velocity-time graph gives:

- (A) The distance.
- (B) The displacement.
- (C) The acceleration
- (D) The speed

20. A body is thrown vertically upward with velocity u , the greatest height h to which it will rise is:

- (A) u/g
- (B) $u^2/2g$
- (C) u^2/g
- (D) $u/2g$

21. The process of recoil of gun is based on:

- (A) Newton's first law of motion.
- (B) Newton's second law of motion.
- (C) Newton's third law of motion.
- (D) None of these.

22. Which of the following statement is not correct for an object moving along a straight path in accelerated motion?

- (A) Its speed keeps changing.
- (B) Its velocity always changes.
- (C) It always goes away from the Earth.
- (D) A force is always acting on it.

23. According to the third law of motion, action, and reaction:

- (A) Always act on the same body.
- (B) Always act on different bodies in opposite directions.
- (C) Have same magnitude and direction.
- (D) Act on either body at normal to each other.

24. The property of an object to resist any change in its state of motion or rest called

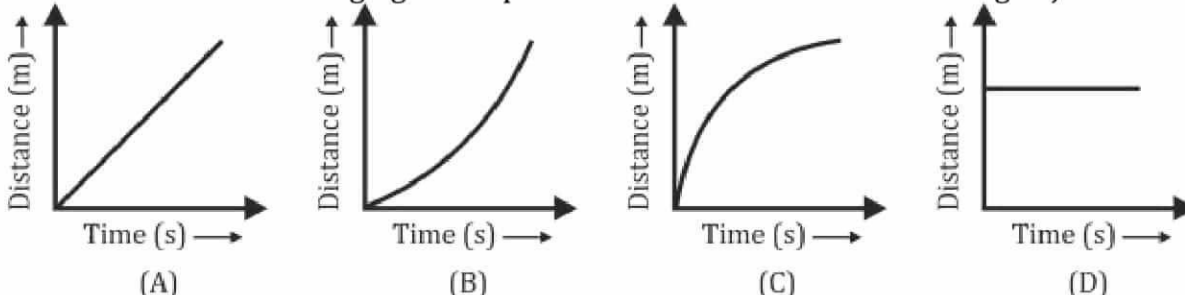
- (A) Motion
- (B) Inertia
- (C) Impulse
- (D) Velocity

SECTION - B

Section - B consists of 24 questions (Sl. No. 25 to 48). Attempt any 20 questions from this section.

The first attempted 20 questions would be evaluated.

25. Which of the following figures represents uniform motion of a moving object correctly?



26. In which of the following cases of motions, the distance moved, and the magnitude of displacement are equal?

- (A) If the car is moving on a straight road.
- (B) If the car is moving in circular path.
- (C) The pendulum is moving to and fro.
- (D) The earth is revolving around the sun.

27. 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) $2\pi r$



28. If the displacement of an object is proportional to square of time, then the object moves with:

- (A) Uniform velocity
- (B) Uniform acceleration
- (C) Increasing acceleration
- (D) Decreasing acceleration

29. A car accelerates uniformly from 18 km per hour to 36 km per hour in 5 minutes. The acceleration is:

- (A) 5 ms^{-2}
- (B) 1 kms^{-2}
- (C) 216 ms^{-2}
- (D) 216 kmh^{-2}

30. For a particle performing a uniform circular motion, the acceleration is:

- (A) Constant in direction.
- (B) Constant in magnitude and direction.
- (C) Constant in magnitude but not in direction.
- (D) Constant in neither magnitude nor in direction.

Question No. 31 to 35 consists of two segments – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

- [A] Both **A** and **R** are **True** and **R** is the correct explanation of **A**.
- [B] Both **A** and **R** are **True** and **R** is NOT the correct explanation of **A**.
- [C] **A** is **True** but **R** is **false**
- [D] **A** is **False** but **R** is **true**.

31. Assertion (A): The particles of colloid are separated by a centrifugation method.

Reason (R): Colloids are big enough to scatter a beam of light passing through it.

- [A] Both A and R are True and R is the correct explanation of A.
- [B] Both A and R are True and R is NOT the correct explanation of A.
- [C] A is True but R is false
- [D] A is False but R is true.

32. Assertion (A): Chloroplast is called the kitchen of the cell.

Reason (R): Chlorophyll pigment is present in chloroplast which helps in photosynthesis.

- [A] Both A and R are True and R is the correct explanation of A.
- [B] Both A and R are True and R is NOT the correct explanation of A.
- [C] A is True but R is false
- [D] A is False but R is true.

33. Assertion (A): Cork is a protective tissue present in plants.

Reason (R): It aids in protection against water loss, mechanical injury, and microbial infection.

[A] Both A and R are True and R is the correct explanation of A.

[B] Both A and R are True and R is NOT the correct explanation of A.

[C] A is True but R is false

[D] A is False but R is true.

34. Assertion (A): The position time graph of a uniform motion in One dimension of a body can have negative slope.

Reason (R): When the speed of body decreases with time, the position time graph of the moving body has negative slope.

[A] Both A and R are True and R is the correct explanation of A.

[B] Both A and R are True and R is NOT the correct explanation of A.

[C] A is True but R is false

[D] A is False but R is true.

35. Assertion (A): Newton's third law of motion is applicable only when bodies are in motion.

Reason (R): Newton's third law applies to all types of Forces.

[A] Both A and R are True and R is the correct explanation of A.

[B] Both A and R are True and R is NOT the correct explanation of A.

[C] A is True but R is false

[D] A is False but R is true.

36. Which of the following are chemical changes?

(i) Decaying of wood.

(ii) Burning of wood.

(iii) Sawing of wood.

(iv) Hammering of a nail into a piece of wood.

(A) (i) and (ii)

(B) (ii) and (iii)

(C) (iii) and (iv)

(D) (i) and (iv)

37. A mixture contains four solid compounds P, Q, R, and S. On heating, R changes to Vapour state. It can be separated from rest of the solids by:

(A) Sublimation

(B) Filtration

(C) Crystallization

(D) Distillation

38. Match the Column I with Column II and select the correct option below:

	Column I	Column II
[a]	Miscible Liquids	1. Distillation
[b]	Immiscible Liquids	2. Crystallisation
[c]	Pure Copper sulphate from an impure sample	3. Sublimation
[d]	Salt and ammonium chloride	4. Separating funnel

(A) a=4, b=2, c=3, d=1

(B) a=1, b=3, c=2, d=4

(C) a=1, b=4, c=2, d=3

(D) a=2, b=1, c=4, d=3

39. Which muscles act involuntarily?

- (i) Striated muscles
- (ii) Smooth muscles
- (iii) Cardiac muscles
- (iv) Skeletal muscles

- (A) (i) and (ii)
- (B) (ii) and (iii)
- (C) (ii) and (iv)
- (D) (i) and (iv)



40. Select the incorrect sentence.

- (A) Blood has matrix containing proteins, salts, and hormones.
- (B) Two bones are connected with ligament.
- (C) Tendons are non-fibrous tissue and fragile.
- (D) Cartilage is a form of connective tissue.

41. Cartilage is not found in

- (A) Nose
- (B) Ear
- (C) Kidney
- (D) Larynx

42. Select the odd one out:

- (A) The movement of water across a semi permeable membrane is affected by the amount of substances dissolved in it.
- (B) Membranes are made of organic molecules like proteins and lipids.
- (C) Molecules soluble in organic solvents can easily pass through the membrane.
- (D) Plasma membranes contain chitin sugar in plants.

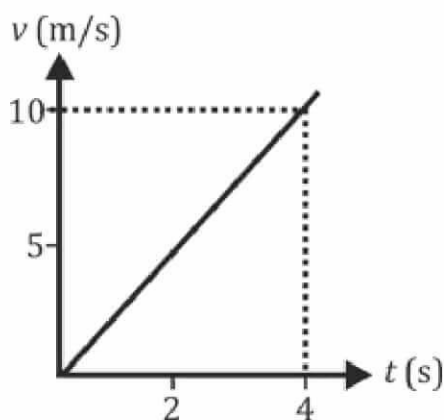
43. Lysosome arises from:

- (A) Endoplasmic reticulum
- (B) Golgi apparatus
- (C) Nucleus
- (D) Mitochondria

44. Liquid molecules in the cell are synthesized by

- (A) Smooth endoplasmic reticulum
- (B) Rough endoplasmic reticulum
- (C) Golgi apparatus
- (D) Plastids

45. The v-t graph of a body of 5 kg moving with the help of a force is shown. Then, the force involved is



- (A) 20 N
- (B) 125 N
- (C) 12.5 N
- (D) 2.0 N

46. Which of the following statement is not correct for an object moving along a straight path in accelerated motion?

- (A) Its speed keeps changing.
- (B) Its velocity always changes.
- (C) It always goes away from the Earth.
- (D) A force is always acting on it.

47. According to the third law of motion, action, and reaction:

- (A) Always act on the same body.
- (B) Always act on different bodies in opposite directions.
- (C) Have same magnitude and direction.
- (D) Act on either body at normal to each other.

48. Which of the following mixtures will give ester (first component) as a first distillate using fractional distillation?

- (a) Ethyl ethanoate (77°C), Ethanol (78°C), Ethanoic acid (118°C).
- (b) Butyl ethanoate (128°C), Butanol (117°C), ethanoic acid (118°C).
- (c) Ethyl methanoate (54°C), Ethanol (78°C), Methanoic acid (101°C).
- (d) Methyl butanoate (102°C), Methanol (65°C), Butanoic acid (169°).

SECTION - C

Section - C consists of three Cases followed by questions. There are a total of 12 questions in this section. Attempt any 10 questions from this section.

The first attempted 10 questions would be evaluated.

Case - 1:

Study the given diagram and answer the following questions:

49. Name the tissue shown in the diagram.

- (A) Xylem
- (B) Phloem
- (C) Epidermis
- (D) Cortex

50. What will happen if Phloem at the base of the branch is removed?

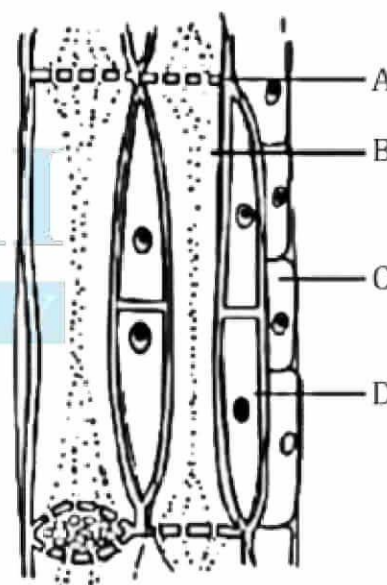
- (A) Plant will die
- (B) Lower parts of the plants wilted.
- (C) No change occurs.
- (D) None of these.

51. Identify the parts A, B, C, and D:

- (A) A - Companion cell, B - Sieve tube, C - Sieve plate, D- Phloem parenchyma.
- (B) A - Phloem Parenchyma, B - Companion cell, C- Sieve tube, D-Sieve plate.
- (C) A - Sieve plate, B - Sieve tube, C - Phloem parenchyma D-Companion cell.
- (D) A - Sieve tube, B - Phloem parenchyma, C - Sieve plate, D- Companion cell.

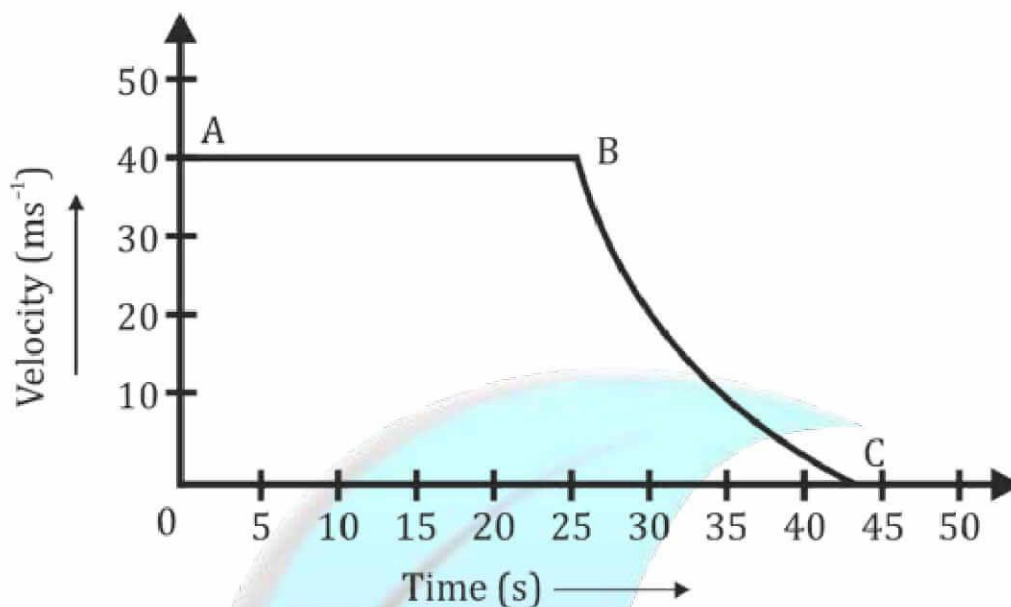
52. Vascular bundles are:

- (A) Only Xylem
- (B) Only Phloem
- (C) Only Cortex
- (D) Both Xylem and Phloem.



Case – 2:

Study the following graph and choose the correct option to the answer. The velocity time graph of an object is shown in the following figure:



53. State the kind of motion that objects have, from A to B and from B to C.

- (A) Circular motion from A to B.
- (B) Uniform motion from A to B and non-uniform motion from B to C.
- (C) Cyclic motion.
- (D) Non uniform motion from A to B.

54. Identify the part of graph where the object has zero acceleration. Give reasons for your answer.

- (A) BC as velocity remains the same.
- (B) AB because velocity remains constant from A to B.
- (C) Zero acceleration is not seen anywhere.
- (D) AC as velocity changes.

55. Identify the part of graph where the object has negative acceleration. Give reasons for your answer.

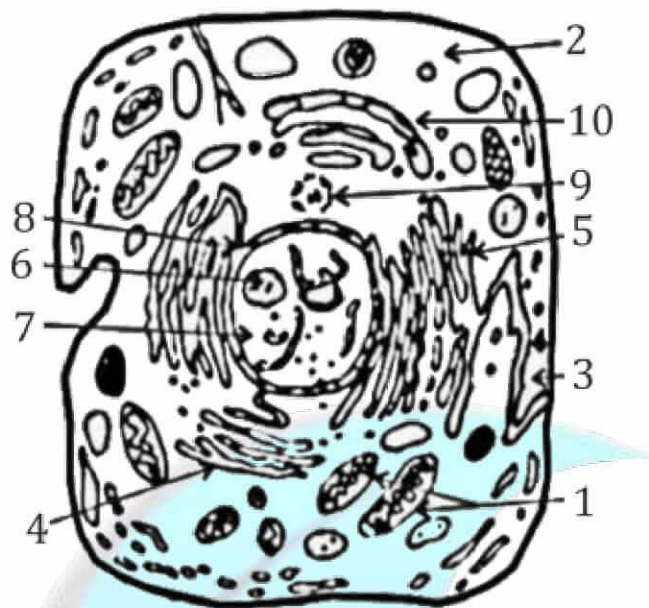
- (A) AB as velocity does not change.
- (B) AC as velocity does not change.
- (C) BC because velocity decreases from B to C.
- (D) Negative acceleration is not seen.

56. Which of the following statement is correct?

- (A) Velocity-time graph can never be a straight line parallel to velocity axis.
- (B) Velocity-time graph is always a straight line parallel to velocity axis.
- (C) Acceleration cannot be found out from velocity- time graph.
- (D) None of the statement is correct.

Case – 3:

Read the diagram carefully and answer the questions.



57. Identify the diagram-

- (A) Plant cell
- (B) Animal Cell
- (C) Bacterial Cell
- (D) None of these

58. Name the labelled part 1 which releases energy.

- (A) Chloroplast
- (B) Ribosome
- (C) Centrosome
- (D) Mitochondria

59. Which part in the cell help in protein synthesis-?

- (A) Chloroplast
- (B) Ribosomes
- (C) Nucleus
- (D) Lysosomes

60. The Organelle responsible for intracellular transport is:

- (A) Plastids
- (B) Cytosomes
- (C) Endoplasmic Reticulum
- (D) Centrioles