

Science

Sample Question Paper 2 (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. Which of the following statements are true for pure substances?

- (i) Pure substances contain only one kind of particles.
- (ii) Pure substances may be compounds or mixtures.
- (iii) Pure substances have the same composition throughout.
- (iv) Pure substances can be exemplified by all elements other than nickel.

[A] (i) and (ii)

[B] (i) and (iii)

[C] (iii) and (iv)

[D] (ii) and (iii)

2. Which of the following is a metalloid?

[A] Na

[B] Fe

[C] Cu

[D] As

3. In which of the following the constituents are present in any ratio?

[A] Compound

[B] Mixture

[C] Colloid

[D] Solution

4. Identify homogeneous mixture from the following:

[A] Soil

[B] Vinegar

[C] Unfiltered tea

[D] Polluted air

5. Choose the wrong statement.

[A] The nature of matrix 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

6. Aerenchyma provides

[A] Extra space of photosynthesis and storage of food

[B] Mechanical strength of plants

[C] Flexibility to plants

[D] Buoyancy to hydrophytic plants

7. Which of the following tissues has dead cells?

[A] Parenchyma

[B] Sclerenchyma

[C] Collenchyma

[D] Epithelial tissue

8. The walls of sclerenchyma tissues are thickened due to lignin:

- [A] True [B] False
[C] Can't say [D] Partially true/false

9. A long tree has several branches. The tissues that help in the sideways conduction of water in the branches is

- [A] Collenchyma [B] Xylem parenchyma
[C] Parenchyma [D] Xylem Vessels

10. Which of the following is not a part of epidermal tissue system?

- [A] Companion cells [B] Guard cells
[C] Root hair [D] Subsidiary cells

11. The word Cells is derived from:

- [A] Greek word that means small box like structure
[B] Latin word that means a little room
[C] Greek word that means a little room
[D] Latin word that means small box like structure

12. Cell theory states that cells are structural and functional unit of

- [A] plants [B] animals
[C] both [A] and [B] [D] microbes

13. Match the following columns:

	Column I	Column II
A.	Robert Hooke	1. Discovery of nucleus
B.	Schleiden & Swann	2. Protoplasm
C.	Robert Brown	3. Cell theory
D.	Purkinje	4. Discovered Cell

- [A] A=3, B=4, C=1, D=2
[B] A=1, B=2, C=3, D=4
[C] A=2, B=4, C=1, D=3
[D] A=4, B=3, C=1, D=2

14. The only cell organelle seen in prokaryotic cell is:

- [A] Mitochondria [B] Ribosome
[C] Plastids [D] Lysosome

15. Diffusion is the process in which substance move from region of ____ (A) ____ concentration to a region of ____ (B) ____ concentration

- [A] A = Low, B = High [B] A = High, B = Low
[C] A = Low, B = Low [D] A = High, B = High

16. Choose the incorrect statements

- [A] Lysosomes form the garbage disposal system of animal cells
[B] Ribosome carries out the synthesis of proteins
[C] Liquid content of the vacuole in a plant cell is called cell sap
[D] The colourless plastid that stores proteins, lipids, and starch is named xanthophyll.

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

- [A] if the car is moving on a straight road.
[C] if the pendulum is moving to and fro.

- [B] if the car is moving on a circular road.
[D] if a planet is moving around the sun.

18. If an object is moving with constant velocity, then the motion is:

- [A] Speed
[C] Uniform motion

- [B] Uniform acceleration
[D] Non-uniform motion

19. The speed of a moving object is determined to be 0.06 metre per second. This speed is equal to:

- [A] 2.16 km per hour
[C] 0.216 km per hour

- [B] 1.08 km per hour
[D] 0.0216 km per hour

20. A motor car travels with the speed V_1 from A to B and returns back from B to A with a speed V_2 . The average speed of the car during its journey is:

- [A] $V_1 + V_2/2$
[C] $2V_1.V_2 / V_1 + V_2$

- [B] $V_1.V_2 / V_1 + V_2$
[D] $\sqrt{V_1.V_2}$

21. If an unbalanced force is applied on the moving object there will be a change in its _____ or in the _____ of its motion.

- [A] Shape, speed
[C] Shape, direction

- [B] Speed, direction
[D] Size, direction

22. Dirty blanket is beaten by stick to remove dust particles. Which law holds good for this?

- [A] Law of conservation of momentum
[C] Law of impulse

- [B] Law of Inertia
[D] Law of conservation of energy

23. Father has mass 60 kg and the mass of his son is 30 kg. The ratio of the inertia of the father to his child is

- [A] 1:1
[C] 2:1

- [B] 1:2
[D] 1:3

24. A water tanker filled up to $2/3$ of its height is moving with a uniform speed. On sudden application of the break, the water in the tank would be –

- [A] Move backward
[C] Be unaffected

- [B] Move forward
[D] Rise upwards

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. A bridge is 400 m long. A 150 m long train crosses the bridge at a speed of 50 metre per second. Time taken by the train to cross it:

- [A] 5 s
[C] 6 s

- [B] 8 s
[D] 11 s

26. An object travels 24 m with a speed of 4 metre per second and another 32 m with a speed of 8 metre per second. The average speed of the object is

- [A] 6 m/s
[C] 5.6 m/s

- [B] 4 m/s
[D] 6.5 m/s

27. A point object transverses half the distance with velocity V^0 . The remaining part of the distance is covered with velocity V_1 for the half of the time and which velocity V_2 for the rest half. The average velocity of the object for the whole journey is –

[A] $2V_1 (V^0 + V_2) / (V^0 + 2V_1 + 2V_2)$

[B] $2 V^0 (V^0 + V_1) / (V^0 + V_1 + V_2)$

[C] $2V^0 (V_1 + V_2) / (V_1 + V_2 + 2 V^0)$

[D] $2V_2 (V^0 + V_1) / (V_1 + 2V_2 + V^0)$

28. A particle is travelling with a constant speed. This means –

[A] its position remains constant as time passes

[B] it covers equal distance in equal time intervals

[C] its acceleration is zero

[D] it does not change its direction of motion

29. The acceleration of a car that speeds up from 12 metre per second to 30 metre per second in 15 second is:

[A] 2.4 metre per second square

[B] 1.2 metre per second square

[C] 2 metre per second square

[D] 5.2 metre per second square

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

[A] a uniform velocity

[B] a uniform acceleration

[C] increasing acceleration

[D] decreasing acceleration

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): Water and Carbon dioxide are known as compound.

Reason (R): Water and Carbon dioxide are heterogeneous in nature.

[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): The growth of the plants occurs only in certain specific regions.

Reason (R): The meristematic tissue is found over the plant body.

[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): Schleiden and Schwann proposed the cell theory.

Reason (R): His cell theory states that all plants and animals are composed of cells.

[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**

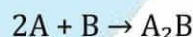
[D] **A** is **False** but **R** is **true**.

34. Assertion (A): The speedometer of an automobile measures the average speed of the automobile.
Reason (R): Average velocity is equal to total displacement per total time taken.
[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): When various forces are, acting on a body may accelerating or remain static.
Reason (R): Acceleration in a body is produced only due to resultant force acting on 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.

36. Which of the following property does not prove that water is a compound?
[A] Water is made up of two different elements (H and O). Which chemically combined with one another in a fixed proportion.
[B] Water has fixed boiling point
[C] The constituents of water cannot be separated by simple physical methods
[D] Distilled water and tap water have same taste and constituents.

37. Two substances, A and B were made to react to form a third substances, A_2B according to the following reaction,



Which of the following statement concerning this reaction are incorrect?

- (i) The product A_2B shows the properties of substance A and B.
- (ii) The product will always have a fixed composition.
- (iii) The product so formed cannot be classified as a compound.
- (iv) The product so formed is an element.

[A] (i), (ii) and (iii)
[C] (i), (iii) and (iv)

[B] (ii), (iii) and (iv)
[D] (ii), (iii) and (iv)

38. Two chemical species X and Y combine together to form a product P which contains both X and Y, $X + Y \rightarrow P$, X and Y cannot be broken down into simpler substances by simple chemical reactions. The following concerning the species X, Y and P are correct?

- (i) P is a compound.
- (ii) X and Y are compounds.
- (iii) X and Y are elements.
- (iv) P has a fixed composition.

[A] (i), (ii) and (iii)
[C] (ii), (iii) and (iv)

[B] (i), (ii) and (iv)
[D] (i), (iii) and (iv)

39. The permanent tissue, collenchyma provides _____(A)_____ and _____(B)_____ to plants.

- [A] A = Food B = water
- [B] A = Flexibility B = mechanical support
- [C] A = buoyancy B = support
- [D] A = Flexibility B = buoyancy

40. In desert plants, rate of water loss gets reduced due to the presence of:

- [A] Cutin
- [B] Stomata
- [C] Lignin
- [D] Suberin

41. Cork cells are made impervious to water and gases by the presence of:

- [A] Cellulose
- [B] Lipids
- [C] Suberin
- [D] Lignin

42. Choose the incorrect statement from the following options.

- [A] All cells arise from pre-existing cells only.
- [B] Rudolf Virchow proposed the cell theory.
- [C] Nucleus was discovered by Robert Brown in 1831.
- [D] The nucleus and cytoplasm of a living cell, altogether form the protoplasm.

43. The rigid outer covering in plant cell is called cell membrane.

- [A] True
- [B] False
- [C] Can't say
- [D] Partially true or partially false

44. Chromosomes are made up of –

- [A] DNA
- [B] Protein
- [C] DNA and Protein
- [D] RNA

45. When a rubber Balloon held between the hands is pressed, its shape changes. This happens because:

- [A] Balanced forces act on the balloon.
- [B] Unbalanced forces act on the balloon.
- [C] Frictional forces act on the balloon.
- [D] Gravitational forces act on the balloon.

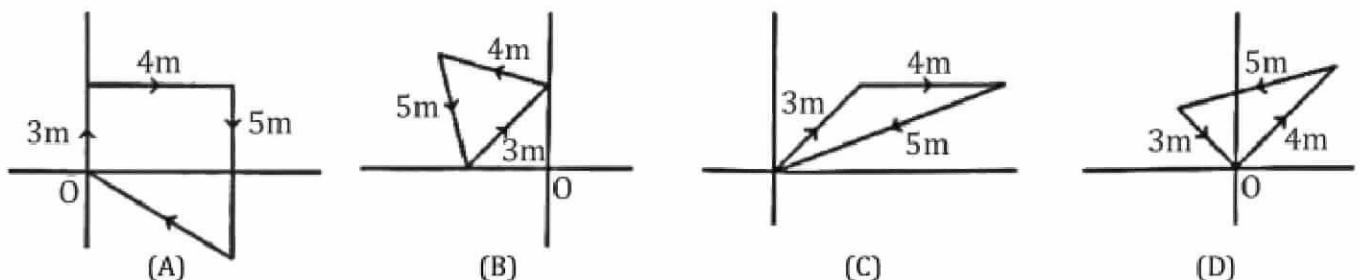
46. What is the SI unit of momentum?

- [A] kg-ms
- [B] ms/kg
- [C] kg-ms⁻¹
- [D] kg/ms

47. An object of mass 4 kg moves with a velocity of 4 metre per second, then its Momentum will be –

- [A] 16 m/s
- [B] 4 m/s
- [C] 16 kg-m/s
- [D] 4 kg-m/s

48. A particle starting from origin, moves 3 m North, 4 m East, 5 m South and then returns back to its initial position. Which of the following figures represents the path travelled by the particle?



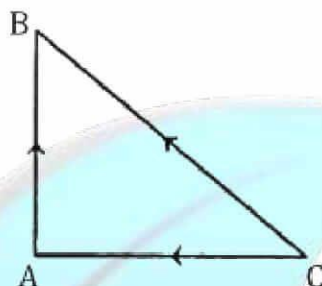
SECTION - C

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:

The distance travelled by a body is the actual length of the path covered by it, irrespective of the direction in which body travels. It is a scalar quantity. The displacement of a body is the change in the position of the object when it moves from a given position to another position. It is equal to the length of the shortest path measured in the direction from the initial position to the final position of the object. It is a vector quantity. In the figure given below:



In moving from C to B, two paths are possible, CAB and CB, where, CAB is the distance covered and CB is the displacement of object.

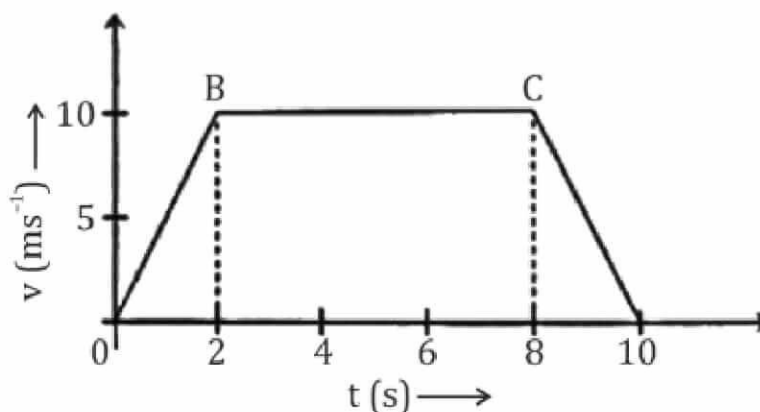
49. Choose the correct statement.

- [A] The displacement can be greater than distance when the path of motion is circular.
- [B] The displacement can never be greater than distance. It can either be less than or equal to distance.
- [C] The displacement can be greater than distance when the path of motion is parabolic.
- [D] The displacement of an object is always equal to the distance travelled by it.

50. Displacement of a body can be

- [A] Positive
- [B] Negative
- [C] Zero
- [D] All of these

51. The velocity versus time graph of a body in motion is shown below. The displacement of the body will be



- [A] 20 m
- [C] 80 m

- [B] 60 m
- [D] 110 m

52. A body travels a distance of 15 m from A to B and then moves a distance of 20 m at right angle to BE. The displacement of the body will be

- [A] 15 m
- [B] 25 m
- [C] 35 m
- [D] 40 m

Case – 2:

Meristematic tissue contains undifferentiated cells which are the building blocks of specialised plant structures. Cells forming this tissue are very active, have dense cytoplasm, thin cellulosic walls and a prominent nucleus. The new cells produced by meristem are initially like those of meristem.

53. Which of the following is not a defining property of meristem?

- [A] Contains undifferentiated cells.
- [B] They exhibit the property of food storage.
- [C] The meristem has a quality of self-renewal.
- [D] They have a single, large, and prominent nucleus.

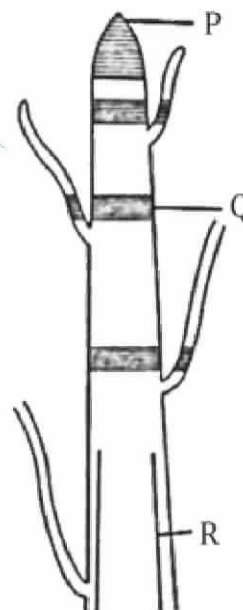
54. Meristematic tissue contains

- I. Dead cells of varying shapes.
- II. Large nucleus with vacuole.
- III. Large nucleus without vacuole.
- IV. No intercellular spaces Codes.

- [A] I Only
- [B] II and IV
- [C] III and IV
- [D] I, II and III

55. Select the incorrect match.

- [A] Meristematic tissue - Growth tissue growing tips of stem and roots.
- [B] Apical meristem.
- [C] Lateral meristem Plant elongation.
- [D] Intercalary Leaf base or meristem internodes.

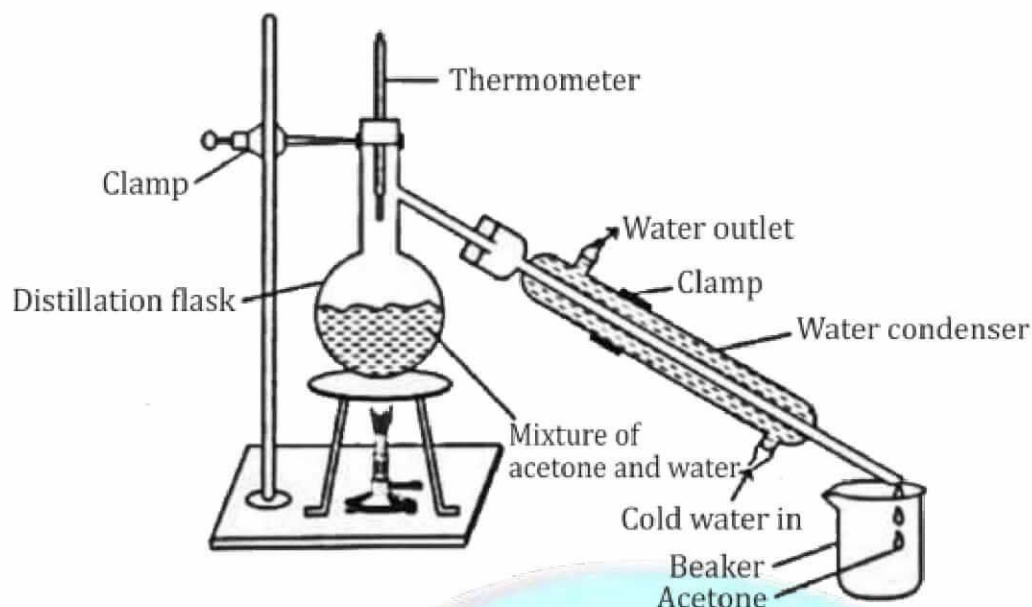


56. Identify the incorrect statement from the following

- [A] Cells keep dividing in the meristematic zone.
- [B] Meristem produces new cells which are similar in appearance initially, but change later.
- [C] Meristematic tissues lack vacuoles.
- [D] Lateral meristem acts as pro-meristem.

Case – 3:

Different methods of separation are used to get individual components from a mixture. In order to separate components of a mixture, single or a combination of methods are used. The method of selection depends upon the nature of the components present in the mixture. If liquids in a mixture are miscible and have different boiling points, they can be separated by distillation. Distillation involves conversion of a liquid into vapours and then condensing the vapours back into liquid. Distillation is used only if the liquids have a difference in boiling point of more than 25 K.



57. Which of the following is not separated by distillation?

- [A] Chloroform and water.
- [B] Milk and water.
- [C] Acetone and ethanol.
- [D] Impurities in sea water.

58. The distillation is the best technique to separate liquids having different.

- [A] Solubility
- [B] Melting points
- [C] Boiling point
- [D] All of these

59. The residue left in the round bottom flask in the distillation process is a liquid having:

- [A] High boiling point
- [B] Low boiling point
- [C] Impurity
- [D] High solubility

60. The observation made from distillation process is

- [A] Acetone boils first.
- [B] Water boils first.
- [C] Impurity evaporates.
- [D] Water boils at 363 K.