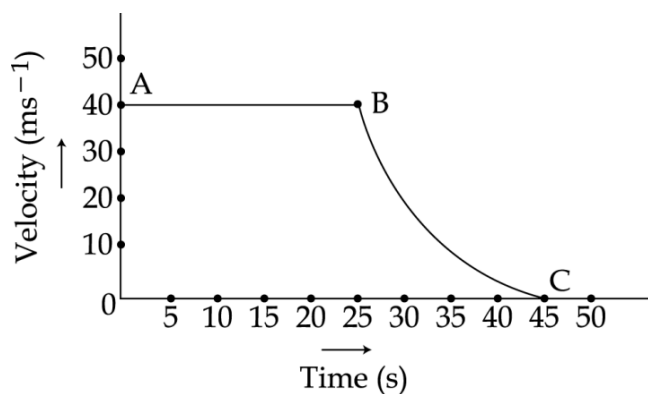


SECTION - A

1. State the significance of membrane biogenesis.
2. Calculate the net force acting on a bus boarded with passengers, of mass 2000kg, moving with a uniform velocity of 60km/hr.
3. Mention two climatic conditions essential for different crops for growth and completion of their life cycle.
4. Both smoke and fog are called as Aerosols. Identify the dispersed phase and dispersing medium in each of them .
5. Name the following tissues.
  - (a) The connective tissue found between the skin and muscles.
  - (b) The tissue which connects two bones.
  - (c) The epithelial tissue which forms the lining of the kidney tubules.
  - (d) The tissue which is present in the veins of leaves.
6. All the planets are moving in circular orbits. What provides the necessary force for this motion and what is the direction of this force ? Write the name of this force. What will happen if this force disappears suddenly ?
7. Define solid state of matter. State properties associated with this state.
8. Explain by an activity that different states of matter have varied force of attraction between the Particles.
9. Aarushi's mother always squeezes water from wet clothes in the spinner of washing machine and then uses it to clean the floor.
  - (a) Write the principle of the technique used in the above mentioned process.
  - (b) Write one more application of this technique.
  - (c) What do you learn from Aarushi's mother?
10. Identify the type of tissues in the following : (a) Vascular bundle (b) Inner lining of the intestine (c) Lining of kidney tubule (d) Iris of the eye (e) Muscles of the heart (f) Bronchi of lungs
11. Name the following and give one characteristic of each.
  - (a) Living tissue that provides mechanical support in plants.
  - (b) Highly specialised cells for being stimulated and then transmitting the stimulus very rapidly within the body of animals.
  - (c) Animal tissue with elongated cells and contractile proteins responsible for movement
- 12.



- (a) State the kind of motion that object has, from A to B and from B to C.
  - (b) Identify the part of graph where the object has zero acceleration. Give reason for your answer.
  - (c) Identify the part of graph where the object has negative acceleration. Give reason for your answer.
13. If you divide the total distance travelled on a car trip by the time for the trip, are you calculating the average speed or the magnitude of the average velocity? Under what

circumstances are these two quantities the same ? Illustrate with the help of an example.

14. When is an object said to be in free fall ? What is meant by acceleration due to gravity ? Derive an expression for acceleration of an object falling freely.

15. A black and a red suitcase were tied to the car roof. It takes 5 ropes to keep a black suitcase from falling down a car while turning and only two ropes to keep the red suitcase from falling down. What do you conclude about the relative weight of the two suitcases? Justify your answer on the basis of Newton's Law of motion. Also state the Law.

16. "Green Revolution of 1960 is a boon by itself". List three steps that may be initiated to increase crop production.

17. In what ways internal parasites like worms and flukes and external parasites cause harm to the cattle's.

18. Explain the meaning of 'milch' and 'draught animals. Mention the scientific name of common Indian cow.

19. (a) Mention any two differences between physical and chemical changes. Give one example of each.

(b) List any two properties for each of the following case of metals which makes them suitable to be used as :

(i) utensils for cooking food (ii) wires for electrical connections

20. (a) Describe an activity with diagram to illustrate that no change in temperature takes place when a liquid converts into vapour. (b) Mention any two differences between evaporation and boiling.

21. (a) Draw a neat diagram of transverse section of collenchyma tissue and label any four parts on it.

(b) Write any two differences between parenchyma and collenchyma tissues.

22. (a) An object has mass 1 kg and weight 1.67 N on moon. Calculate its weight and mass on earth ( $g = 10 \text{ m/s}^2$ )

(b) Calculate the force exerted by sun on earth and earth on sun if mass of sun is  $2 \times 10^{30} \text{ kg}$ , mass of earth is  $6 \times 10^{24} \text{ kg}$ , average distance  $1.5 \times 10^{11} \text{ m}$  between them

23. Give reasons for the following: a) A helicopter must have two sets of blades in order to fly with stability. b) If you are in an elevator and the cable breaks, jumping out just before the elevator hits the ground would not save you.

c) You usually jerk a paper towel from a roll in order to tear it instead of pulling it smoothly.

d) The stronger, heavier team in a tug-of-war does not create a larger tension in the rope than the weaker, lighter team.

e) Heavy objects are not easier to move around in a horizontal fashion on the Moon than on the Earth.

24. (a) Differentiate between mixed cropping and inter-cropping. Give one example of each.

(b) How is crop-rotation different from the above two ?

(c) Mention the factors that are taken into consideration for deciding choice of crops for inter-cropping and crop rotation. Also mention one advantage of each of these cropping patterns.

## SECTION – B

25. Given below are the four methods of testing the presence of metanil yellow in a given sample of arhar dal. The correct method is :

(a) 5g of dal is added to 5g metanil yellow

(b) 5g of dal is added to 5 mL of water along with 2 drops of conc. hydrochloric acid.

(c) 5g of boiled dal is added to 5 mL of water

(d) 5 g of dal is added to 5 mL of diluted hydrochloric acid

26. Which of the under mentioned food groups will not turn blue black when treated with iodine ?

(a) rice, potato, bread

(b) bread, wheat, corn flour

(c) rice water, boiled potato, corn starch

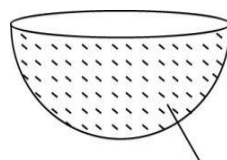
(d) dal, fish, meat

27. A mixture containing iron filings and sulphur powder is spread on the white paper and a magnet is rolled in it. The particles which cling to the magnet are : (a) Sulphur (b)

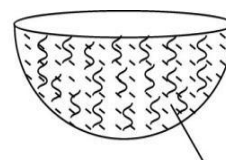
Iron particles (c) Iron sulphide (d) Mixture of iron and sulphur

28. Iron sulphide and a mixture of iron filings and sulphur powder were taken in different china dishes.

Which of the following observations is **correct** ?



Iron sulphide



Iron filings + sulphur

- (a) Both are heterogeneous. (b) Both are homogeneous.  
 (c) Iron sulphide is homogeneous but the mixture of iron filings and sulphur is heterogeneous.  
 (d) Iron sulphide is heterogeneous while the mixture of iron filings and sulphur is homogeneous.
29. The correct observation when you mix barium chloride solution with sodium sulphate solution is that : -  
 (a) a white precipitate is formed after sometime (b) a yellow precipitate is formed after sometime  
 (c) a white precipitate is formed instantaneously (d) a yellow precipitate is formed instantaneously
30. Anoop tabulated his observations about the cheek cells and onion cells as given below :

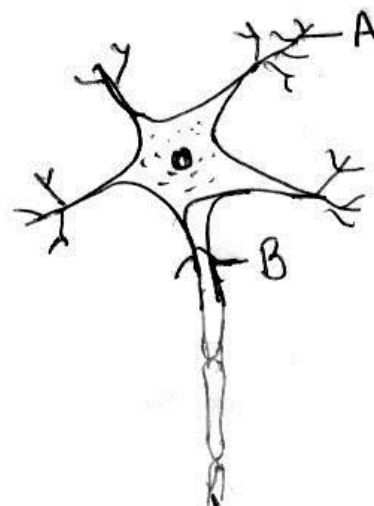
Sl. No.	Cheek cell	Onion cell
i. Stain	Pink	Blue
ii. Nucleus	Present	Present
iii. Vacuole	Centrally located	Few, scattered
iv. Cell wall	Absent	Present

And showed it to his teacher. Two of his observations were wrong. Which ones are they ?

- (a) (i), (ii) (b) (i), (iii) (c) (ii), (iv) (d) (iii), (iv)

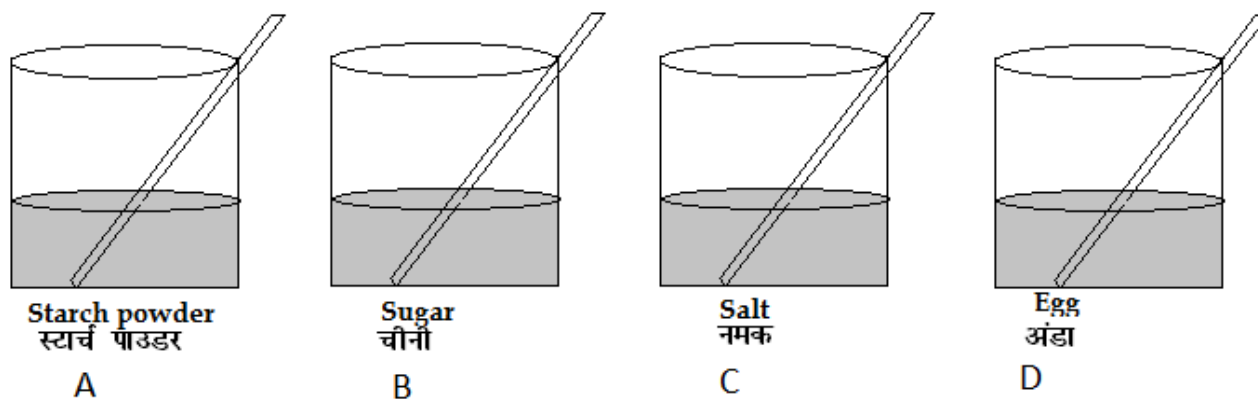
31. In the following diagram; the correct labeling for A and B is :

- (a) A - Nucleus B - dendrite (b) A - Dendrite B - Axon  
 (c) A - Axon B - nucleus (d) A - Dendrite B - nucleus



32. Identify the substance which sublimates on heating;  
 (a) potassium chloride (b) sodium chloride (c) calcium chloride (d) anthracene
33. When two equal and opposite forces act on an object, it will be observed that :  
 (a) Object remains at rest (b) Object continues to move with constant velocity if it was moving  
 (c) Both (a) and (b) (d) Information is insufficient

34. Four students A, B, C and D are asked to prepare colloidal solutions. The following diagrams show the preparation done by them. Name the student, who will be able to prepare colloidal solutions. Write two properties of colloidal solution.



35. Mention the position of bulb of thermometer in the following experiments:-  
 (i) in an experiment to determine the melting point of ice. (ii) in an experiment to determine the boiling point of water.
36. If 'x' is the initial mass of the raisins and 'y' is the final mass of raisins after soaking in water. Calculate the percentage of water absorbed by raisins.

SECTION-A		
1	The smooth endoplasmic reticulum helps in the manufacture of fats or lipids.	1
2	Balanced force, net force = 0	1
3	Temperature and photoperiods.	1
	In smoke dispersed phase is solid and dispersing medium is gas. In fog dispersed phase is liquid and dispersing medium is gas.	2
5	(a) Aerolar, (b) Ligament, (c) Cuboidal epithelium (d) Sclerenchyma	2
6	Force of attraction between the sun and the planets and direction is towards the sun. (Centripetal force). All planets will move along a straight line	2
7	Definition of solid state : 4 Properties of solids : (a) Fixed shape and size (b) They compressibility rigid (c) Negligible compressibility (d) Strong force of attraction	3
8	Description of an activity 1.7 or 1.8 of NCERT Text Book IX	3
9	(a) Centrifugation's Principle – Denser particles are forced to the bottom and the lighter particles stay at the top when spun rapidly. (b) Used in dairies to separate butter from cream. (c) Multiple use of the available resources least wastage.	3
10	(a) Xylem and phloem tissues (b) Columnar epithelium (c) Cuboidal epithelium (d) Unstriated muscular tissue (e) Cardiac muscles (f) Unstriated muscular tissue	3
11	(a) Collenchyma-irregular thickenings at corners (b) Nervous tissue-branched (c) Striated muscles-long, cylindrical, unbranched, show striations.	3
12	(a) Uniform motion from A to B and non - uniform motion from B to C. (b) AB because velocity remains constant from A to B (c) BC because velocity decreases from B to C	3
13	Average speed They are same when path is straight (distance = displacement) example	3
14	When objects fall towards the earth under its gravitational force alone, we say that the objects are in free fall. When an object falls freely, an acceleration is produced to gravitational force and is called acceleration due to gravity and is denoted by the letter 'g' $F = mg \text{ but, } F = \frac{DMm}{d^2} \Rightarrow mg = \frac{DMm}{d^2} \Rightarrow g = \frac{DM}{d^2}$	3
15	Black has more mass/ weight According to Newton's I Law of Motion Statement-	3
16	Any 3 points	3
17	External parasite – Skin diseases; worms – affect stomach and intestine; Flukes – damage liver	3
18	(a) Definition of each term (b) Bos indicus	3
19	(a) Physical change – reversible change, chemical composition do not change, no new substance is formed Chemical change - irreversible change, chemical composition changes, new substance is formed.	5

	Any two differences example – Tearing a paper – physical changes Burning a match stick – chemical change								
	(b) (i) Metals are malleable and good conductors of heat (ii) Metals are ductile and good conductors of electricity								
20	(a) Activity 1.4.1 diagram 1.6 (b) (b) (i) Evaporation is a surface phenomenon while boiling is a bulk phenomenon. (ii) Evaporation takes place at all temperatures while boiling takes place at a particular temperature		5						
21	(a) Correct fig No. 6.4 (b) (i) of NCERT Text Book Class IX with four parts labelled correctly. (b) Difference		5						
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">Parenchyma</th> <th style="width: 50%; text-align: center;">Collenchyma</th> </tr> </thead> <tbody> <tr> <td>(1) Inter cellular spaces are present</td> <td>(1) Very little Inter cellular spaces.</td> </tr> <tr> <td>(2) Cells are elongated</td> <td>(2) Cells may be circular, oval or polygonal.</td> </tr> </tbody> </table>	Parenchyma	Collenchyma	(1) Inter cellular spaces are present	(1) Very little Inter cellular spaces.	(2) Cells are elongated	(2) Cells may be circular, oval or polygonal.		
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(1) Inter cellular spaces are present	(1) Very little Inter cellular spaces.								
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22	(a) $W_e = 6 \times W_m = 6 \times 1.67 = 10.02 \text{ N}$ Mass on earth same i.e 1 kg (b) $F = 3.57 \times 10^{22} \text{ N}$ Force of earth on sun will be same		5						
23	According to Newton's III Law of Motion. An object moving downward will continue to move downwards unless acted upon by an unbalanced force. If you make an effort to supply such a force in an attempt to suddenly alter the direction of your motion, then you are creating a greater velocity change than if (in the same amount of time as the stopping of you and the elevator), then you would experience a greater acceleration, a greater net force. According to Newton's I Law of motion. Same force acting on the rope, on both the ends. Newton's III Law of motion. According to the law of inertia.		5						
24	(a) In mixed cropping two or more crops are grown simultaneously. For eg wheat □ □gram (or any other correct e.g) Inter - cropping - two or more crops are grown simultaneously on the same field in a definite pattern. For eg, soyabean +maize (or any other correct e-g) (b) In crop rotation different crops are grown on a piece of land in a pre-planned succession. Depending upon duration of crop rotation is done for different crop combination. (c) Inter- Cropping - crops are selected such that their nutrient requirements are different. This ensures maximum utilization of the nutrients supplied and prevents pests and diseases from spreading to all plants - thus better returns. Crop - rotation - Availability of moisture and irrigation facilities Two or more crops can be grown in a year with good harvest		5						
SECTION - B									
25 (b)	26(d)	27(b)	28 (c)						
			29 (c)						
			30 (b)						
			31(b)						
			32(d) anthracene .						
			33(c)						
34	A and D Properties :- (i) A colloid is a heterogeneous mixture (ii) Shows tyndal effect.		2						
35	(i) Bulb of thermometer should dip into crushed ice. (ii) Bulb of thermometer should be above the surface of water.		2						
36	Initial mass of raisins = x      Final mass of raisins = y Mass of water absorbed by raisins = y-x % of water absorbed by raisins = $\frac{y-x}{x}$		2						