Class IX Session 2024-25
Subject - Science
Sample Question Paper - 4

**Time Allowed: 3 hours**   **Maximum Marks: 80**

General Instructions:

1. This question paper consists of 39 questions in 5 sections.

2. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

3. Section A consists of 20 objective type questions carrying 1 mark each.

4. Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should in the range of 30 to 50 words.

5. Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should in the range of 50 to 80 words.

6. Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.

7. Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

Section A

1. The temperature-time graph given alongside shows the heating curve for pure wax.   **[1]**
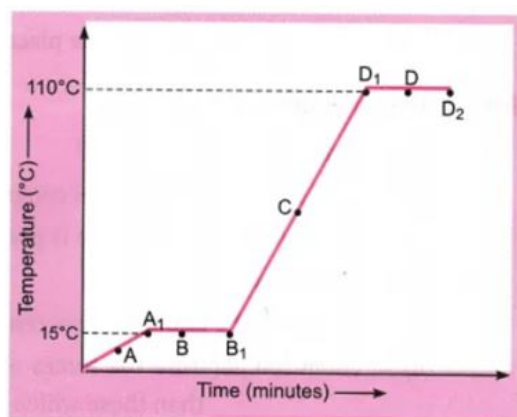
   What is the melting point of the substance?

   a) 110°C   b) 90°C

   c) 9°C   d) 15°C

2. Which of the following acts as a garbage disposal system of the cell?   **[1]**

   a) Vacuole   b) Lysosome

   c) Peroxisome   d) Golgi body

3. In which of the following cases of motion, the distance moved and the magnitude of displacement are equal?   **[1]**

a) The earth is revolving around the Sun

b) The pendulum is moving to and fro

c) A car is moving on a straight road

d) A car is moving in a circular path

4. Which of one of the following nutrients is not available in fertilisers. **[1]**

a) Iron

b) Potassium

c) Nitrogen

d) Phosphorous

5. Rhythmic contraction and relaxation throughout life, are shown by **[1]**

a) epithelium of lungs

b) striated muscles of tongue

c) striated muscles of limbs

d) cardiac muscles of heart

6. Which among the following is concerned with the synthesis and transport of lipids within the cell? **[1]**

a) Smooth endoplasmic reticulum

b) Lysosomes

c) Rough endoplasmic reticulum

d) Golgi apparatus

7. Symbol of Iron is:- **[1]**

a) Ir

b) Fe

c) Mg

d) I

8. Branched involuntary muscles fibres are found in **[1]**

a) ureters

b) limbs

c) heart

d) tongue

9. Three students used three different containers (A) (B) and (C) of different shapes, for finding the loss in weight of solid when dipped in water. On dipping a solid sphere in these containers they would observe that the loss in weight is: **[1]**

a) Minimum in [A]

b) Maximum in [A]

c) Maximum in [B]

d) Same in all

10. A ball is dropped onto the floor from a height of 20 m. It rebounds to a height of 10 m. If the ball is in contact with the floor for 0.1 seconds, what is the average acceleration during contact? **[1]**

a) 142 m s^{-2}

b) 338 m s^{-2}

c) 564 m s^{-2}

d) 285 m s^{-2}

11. A compound of carbon, hydrogen and nitrogen contains these elements in the ratio 9 : 1 : 3.5. If its molecular mass is 108, what is the molecular formula? **[1]**

a) C_2HN_2

b) C_2H_2N

c) $C_6H_8N_2$

d) C_3H_4N

12. The tissue shown in the given figure is **[1]**

    a) Angular collenchyma, in which wall thickenings are present at the angles

    b) Xylem vessel that forms long channels for conduction of water and minerals

    c) Phloem parenchyma with abundant food reserve

    d) Scierenchyma, in which uniform wall thickenings are present

13. In the plant cells, many substances important for life are stored in: **[1]**

    a) plastids

    b) lysosomes

    c) mitochondria

    d) vacuoles

14. To prepare iron sulphide, by heating a mixture of iron filings and sulphur powder, we should use a: **[1]**

    a) copper dish

    b) china dish

    c) watch glass

    d) petri dish

15. Which will not give a stable solution even when stirred for sometimes? **[1]**

    a) Milk in water

    b) Common salt in water

    c) Egg albumin in water

    d) Sugar in water

16. Induced breeding is used to increase the production of **[1]**

    a) poultry birds

    b) draught animals

    c) cows

    d) fish

17. **Assertion (A):** The speedometer of an automobile measure the average speed of the automobile. **[1]**

    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 but R is not the correct explanation of A.

    c) A is true but R is false.

    d) A is false but R is true.

18. **Assertion (A):** It is easier to cook food at high altitudes. **[1]**

    Reason (R): The boiling point of water decreases at high altitudes.

    a) Both A and R are true and R is the correct explanation of A.

    b) Both A and R are true but R is not the correct explanation of A.

    c) A is true but R is false.

    d) A is false but R is true.

19. **Assertion (A):** 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 is still present there. **[1]**

Reason (R): The girth of the stem or root increases due to apical meristem (cambium).

    a) Both A and R are true and R is the correct explanation of A.

    b) Both A and R are true but R is not the correct explanation of A.

    c) A is true but R is false.

    d) A is false but R is true.

20. **Assertion (A):** Isotopes are electrically neutral. **[1]**

    Reason (R): Isotopes are species with same mass number but different atomic numbers.

    a) Both A and R are true and R is the correct explanation of A.

    b) Both A and R are true but R is not the correct explanation of A.

    c) A is true but R is false.

    d) A is false but R is true.

Section B

21. Write an expression for the kinetic energy of an object. **[2]**

OR

Write an expression for the work done when a force is acting on an object in the direction of its displacement.

22. The mass per unit volume of a substance is known as density (density = mass/volume). Arrange the following in order of increasing density:Air, exhaust from chimneys, honey, water, chalk, cotton and iron. **[2]**

23. A ship sends out an ultrasound that returns from the seabed and is detected after 3.42 s. If the speed of ultrasound through seawater is 1531 m/s, what is the distance of the seabed from the ship? **[2]**

24. How will you demonstrate that air contains water vapours? **[2]**
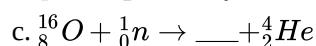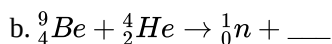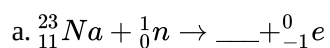
25. Give a few examples of Newton's third law of motion. **[2]**

OR

Why it is advised to tie any luggage kept on the roof of a bus with a rope?

26. Complete the following equations which describe nuclear charge- **[2]**

    a. $^{23}_{11}Na + ^{1}_{0}n \rightarrow$ ___ $+ ^{0}_{-1}e$

    b. $^{9}_{4}Be + ^{4}_{2}He \rightarrow ^{1}_{0}n +$ ___

    c. $^{16}_{8}O + ^{1}_{0}n \rightarrow$ ___ $+ ^{4}_{2}He$

Section C

27.   i. Which characteristic of sound helps to identify your friend by his voice while sitting with others in a dark room? **[3]**

    ii. State the relationship between frequency and time period of a wave. The wavelength of vibrations produced on the surface of the water is 4 cm. If the wave velocity is 20 m/s find the frequency and Time period.

28. Justify the statement, 'Protons are constituents of all atoms'. **[3]**

29. A driver of a car travelling at 52 km h^{-1}applies the brakes and accelerates uniformly in the opposite direction. The car stops in 5 s. Another driver going at 3 km h^{-1} in another car applies his brakes slowly and stops in 10 s. On the same graph paper, plot the speed versus time graphs for the two cars. Which of the two cars travelled farther after the brakes were applied? **[3]**

OR

Two cars A and B are moving along a straight line. Car A is moving at a speed of 80 Km/h while car B is moving at a speed 50 Km/h in the same direction. Find the magnitude and direction of:

(a) the relative velocity of car A with respect to B

(b) The relative velocity of car B with respect to A.

30. Ram's family was worried about heavy electricity bills to be paid. Their neighbour Mohan suggested some easy **[3]** and effective steps to reduce the same. Next month's bill came as a relief to Ram, as the consumption of electricity had reduced by 50 units and so had the bill.

   a. In what other aspects of life can this situation help?

   b. What is the unit of energy?

   c. Write any three steps that you think Mohan might have suggested to Ram.

31. The velocity-time graph of a ball moving on the surface of the floor is as shown in the figure. Calculate the force **[3]** acting on the ball, if mass of the ball is 100 g.
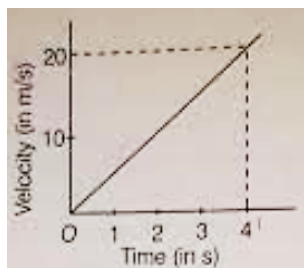
32. What is prokaryotic cell? Differentiate between prokaryotic cell & eukaryotic cell? **[3]**

<div align="center">OR</div>

If you are provided with some vegetables to cook, we generally add salt to the vegetables during cooking process. After adding salt, vegetables releases water. What mechanism is responsible for this?

33. Diagrammatically show the difference amongst three types of muscle fibres. **[3]**

<div align="center">**Section D**</div>

34. The weight of any person on the moon is about 1/6 times that on the earth. He can lift a mass of 15 kg on the **[5]** earth. What will be the maximum mass, which can be lifted by the same force applied by the person on the moon?

<div align="center">OR</div>

What are the differences between the mass of the object and its weight?

35. Draw a well-labeled diagram of a eukaryotic nucleus. How is it different from the nucleoid? **[5]**

<div align="center">OR</div>

Draw a neat labelled diagram of an animal cell.

36. Iron filings and sulphur were mixed together and divided into two parts, A and B. Part A was heated strongly **[5]** while part B was not heated. Dilute hydrochloric acid was added to both the parts and evolution of gas was seen in both the cases. How will you identify the gases evolved?

<div align="center">**Section E**</div>

37. **Read the following text carefully and answer the questions that follow:** **[4]**

Given below is the diagram of the human nerve cell.
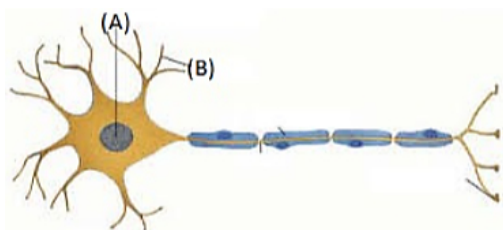
   i. Label the part (A) and (B). (1)

  ii. What is the function of nervous tissue? (1)

  iii. Mention all part of the human body composed of nervous tissue. (2)

   OR

What enables the animal to move rapidly in response to stimuli? (2)

38. **Read the following text carefully and answer the questions that follow:**   **[4]**

Poultry is the rearing of domesticated fowl (chicken), ducks, geese, turkey and some varieties of pigeon for their meat and eggs. Poultry birds are of two types that is broilers and layers. One is specialized meat-producing poultry birds while other is egg-laying poultry birds. The tremendous rise in the availability of poultry products is called Silver Revolution.

   i. What is the meaning of layers regarding poultry? (1)

  ii. There are different breeds of hens, so give some information about broiler. (1)

 iii. We know that different types of revolution regarding animal husbandry. So, what is the silver revolution explain? (2)

   OR

   There are different breeds of poultry birds, mention two examples of indigenous and exotic breeds of poultry birds. (2)

39. **Read the following text carefully and answer the questions that follow:**   **[4]**

Homogeneous mixtures are regarded as solutions or true solutions. Heterogeneous mixtures are of two types. These are suspensions and colloidal solutions. These differ in the size of the particles responsible for the difference in their properties. In a suspension, the particle size is more than 10^{-5} cm whereas in a colloidal solution, it ranges between 10^{-5} cm to 10^{-7} cm. The two phases which constitute colloidal solutions, are dispersed phase and dispersion medium. Based upon their nature, the colloidal solutions are classified into eight types. The mixture of the non-reacting gases is always homogeneous irrespective of their nature. Therefore, it is not a colloidal solution.

   i. Scattering of light occurs when a beam of light is passed through Blood. Why? (1)

  ii. What is Tyndall effect? (1)

 iii. What is called colloidal solution? (2)

   OR

   Give an example of colloidal solution and identified their dispersed phase and dispersion medium? (2)

Solution

Section A

1.
   (d) 15°C
   Explanation: The melting point is the temperature at which solid and liquid are in equilibrium. It is the temperature above which a solid melts to a liquid, or the temperature below which a liquid freezes to a solid.

2.
   (b) Lysosome
   Explanation: The lysosome is a membrane-bound organelle found in nearly all animal cells. They are spherical vesicles that contain hydrolytic enzymes that can break down many kinds of biomolecules. It is also known as suicidal bags or the Garbage disposal system as it cleans the degenerating cells inside the body.

3.
   (c) A car is moving on a straight road
   Explanation: The distance moved and magnitude of displacement are equal only in the case of motion along a straight line. Because displacement is the shortest path between initial and find path. So, for car moving on straight road, distance moved and magnitude of displacement are equal.

4. **(a)** Iron
   Explanation: As iron is a micronutrient that is required mainly for enzyme activity and fertilisers are supplied mainly for replenishing macronutrients which help in plant growth.

5.
   (d) cardiac muscles of heart
   Explanation: Cardiac muscles are present in the heart. They contract and relax rapidly, rhythmically, and tirelessly. They help to pump the blood to various parts of the body.

6. **(a)** Smooth endoplasmic reticulum
   Explanation: Smooth endoplasmic reticulum synthesises lipids while rough endoplasmic reticulum synthesise proteins.

7.
   (b) Fe
   Explanation: Symbol "Fe" for Iron has been derived from the Latin word Ferrum.

8.
   (c) heart
   Explanation: Involuntary muscles are found in walls of hollow tubular organs like an alimentary canal, ducts of glands, urogenital ducts, and blood vessels except the heart. They show slow contractions but remain contracted for a long period of time.

9.
   (d) Same in all
   Explanation: Loss in weight depends on the liquid density and volume displaced (= volume immersed) and not on the shape of the container.

10.
   (b) 338 m s^{-2}
   Explanation: Here height from which ball is dropped,
   h = 20 m
   Using $v^2 = u^2 + 2gh$; $v^2 = 2gh$ ($\because$ u = 0)
   or v = $\sqrt{2gh}$ (downward)
   Ball rebounds to a height, h' = 10 m
   So, $0^2 = v^2 - 2gh'$ or v' = $\sqrt{2gh'}$ (upward)
   Acceleration of the ball,

$a = \frac{(v'-v)}{t} = \frac{\left[\sqrt{2gh'}-(-\sqrt{2gh})\right]}{t}$

or $a = \frac{[\sqrt{2\times9.8\times10}+\sqrt{2\times9.8\times20}]}{0.1} \simeq 338$ ms^{-2}

11.

(c) $C_6H_8N_2$

Explanation: Ratio of elements C, H and N = 9 : 1 : 3.5
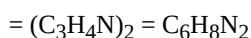
Whole number ratio of elements C, H and N = 18 : 2 : 7

Element	Ratio	Atomic mass	Atomic ratio	Simplest atomic ratio
C	18	12	$\frac{18}{12} = 1.5$	$1.5 \times 2 = 3$
H	2	1	$\frac{2}{1} = 2$	$2 \times 2 = 4$
N	7	14	$\frac{7}{14} = 0.5$	$0.5 \times 2 = 1$

Thus, empirical formula of the compound = C_3H_4N Empirical formula mass of the compound

$= 12 \times 3 + 1 \times 4 + 1 \times 14 = 36 + 4 + 14 = 54$

$n = \frac{\text{Molecular mass}}{\text{Empirical formula mass}} = \frac{108}{54} = 2$

Molecular formula = $n \times$ empirical formula

$= (C_3H_4N)_2 = C_6H_8N_2$

12.

(b) Xylem vessel that forms long channels for conduction of water and minerals

Explanation: Figure shows Xylem vessel that forms long channels for conduction of water and minerals

13.

(d) vacuoles

Explanation: Vacuoles are storage sacs for solid otherwise liquid content. In the plant cells, it provides rigidity and turgidity to the cell. In single-celled organisms, vacuoles store food, e.g., Amoeba.

14.

(b) china dish

Explanation: China's dish is the right apparatus used for strong heating. So, china's dish is used for heating as it has a high melting point and does not react with sulphur.

15.

(c) Egg albumin in water

Explanation: Egg albumin in water will not give a stable solution. The protein in egg albumin coagulated to form a lump in hot water.

16.

(d) fish

Explanation: Induced breeding is an optimal effort to produce fish fry without considering the season. This technique is used to produce fry of fish species that have or potentially have great economic significance for aquaculture, which do not reproduces spontaneously in captivity.

17.

(d) A is false but R is true.

Explanation: Speedometer measures instantaneous speed of automobile.

18.

(d) A is false but R is true.

Explanation: It is difficult to cook food at high altitudes since the boiling point of water decreases at high altitudes and it does not provide sufficiently high temperature to the food to get cooked.

19.

(c) A is true but R is false.

Explanation: The nail will remain at the same position even after 3 years. This is because a plant or tree grows from its tip

(stem or root) not from the point at which it joins the ground. So, the tree will grow but the nail will remain at the same place on the tree trunk.

20.

(c) A is true but R is false.

Explanation: Isotopes are species with same atomic number but different mass numbers.

Section B

21. K.E. $= \frac{1}{2} mv^2$

where K.E. - kinetic energy of an object

'm' - mass of an object

'v' - velocity

OR

Work done = Force × Displacement

i.e. W = F × S

22. The increasing order of density for the given substances is:

Air, exhaust from chimneys, cotton, water, honey, chalk, iron. Actually, the density of a substance depends upon the number of particles per unit volume as well as upon their mass. The number of the particles is related to their size as well as the attractive forces among them.

23. We have given that,

The time between transmission and detection, t = 3.42 s

Speed of ultrasound in seawater, v = 1531 m/s

Therefore, Distance travelled by the ultrasound

= 2 × depth of the sea = 2d

where d is the depth of the sea.

2d = speed of sound × time

= 1531 m/s × 3.42 s = 5236 m

d $= \frac{5236}{2}$ m = 2618 m

Thus, the distance of the seabed from the ship is 2618 m or 2.62 km.

24. Thoroughly dry a glass beaker and take some crushed ice in it. After sometime, droplets of water appear on the outer surface of glass. It is because of water vapours present in air, which get condensed when they come in contact with the glass surface where the temperature is very low.

25.   a. Jet airplanes and rockets work on the principle of Newton's third law of motion.

In this case, the hot gases come out of a nozzle (a fine opening) with a great force, i.e., action and the rocket moves with high speed upwards as a reaction.

   b. If we fill a balloon with air and hold it with its mouth downwards, then when we release the balloon, the air rushes out vertically downwards (action). *The balloon moves vertically upwards (reaction).
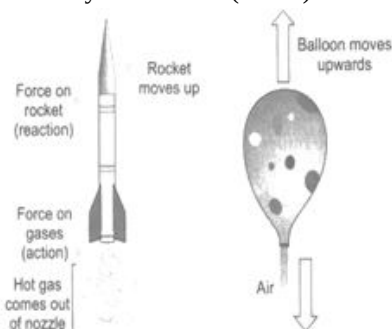
   c. When a gun is fired, the bullet goes out (action) due to the force applied on it. According to Newton's third law of motion, the gun recoils backward due to the reaction acting on it in the opposite direction.

OR

Luggage on the top of the bus is a loose fixture and not a compact part of the bus. Thus, when a speeding bus brakes suddenly, the luggage continues moving forward because of inertia of motion and is likely to fall off the bus. Conversely, if a stationary bus accelerates suddenly, the luggage continues in the same state because of inertia of rest and hence is left behind relative to bus such that it falls backward. To avoid the falling of luggage, it is tied with a rope.

26. **In any nuclear reaction, mass number (no. of p^+ + no. of n^0) and atomic number (no. of p+) must be conserved.**

   1. $\left(^{23}_{11}Na + ^1_0n \rightarrow \underline{\quad} + ^0_{-1}e\right)$; (mass no. A = 23+1=24, atomic no. Z = 11+1=12 , Magnesium having mass no. 24 & atomic no. 12); $^{23}_{11}Na + ^1_0n \rightarrow ^{24}_{12}Mg + ^0_{-1}e$
   2. $^9_4Be + ^4_2He \rightarrow ^1_0n + \underline{\quad}$ (mass no. A = 9+4-1=12, atomic no. Z = 4+2-0=6, Carbon having mass no. 12 & atomic no. 6) ; $^9_4Be + ^4_2He \rightarrow ^1_0n + ^{12}_6C$
   3. $^{16}_8O + ^1_0n \rightarrow \underline{\quad} + ^4_2He$ (mass no. A = 16+1=17, atomic no. Z = 8-2=6, isotopes of Carbon having mass no. 13 & atomic no. 6); $^{16}_8O + ^1_0n \rightarrow ^{13}_6C + ^4_2He$

Section C

27.   i. Timbre or quality of sound that is distinct from its pitch and intensity helps to identify your friend by his voice while sitting with others in a dark room.
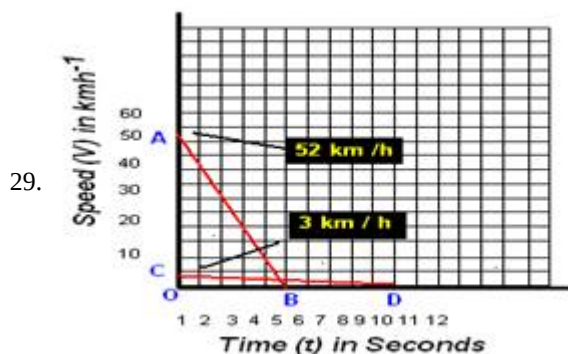
   ii. Frequency $= \frac{1}{\text{Time Period}}$

   $\lambda = 4$ cm = 0.02 m, v = 20 m/s , V = ? and T = ?

   $V = \frac{v}{\lambda} = \frac{20}{0.04}$ = 500 Hz

   $T = \frac{1}{V} = \frac{1}{500} = $ 0.002 s

28. The mass and charge of the nucleus of an atom of any element is found to be whole number multiple of the mass and charge of a proton. Hence, protons are constituents of all atoms.

29.

As given in the figure below AB (in red line) and CD(in red line) are the Speed-time graph for given two cars with initial speeds 52kmh^{-1} and 3 km h^{-1} respectively.

Distance Travelled by first car before coming to rest =Area of $\triangle$OAB

$= (\frac{1}{2}) \times$ OB $\times$ OA

$= (\frac{1}{2}) \times$ 5s $\times$ 52 kmh^{-1}

$= (\frac{1}{2}) \times$ 5 $\times$ (52 $\times$ 1000)/3600)m

$= (\frac{1}{2}) \times$ 5 $\times$ ($\frac{130}{9}$)m

$= \frac{325}{9}$

= 36.11 m

Distance Travelled by second car before coming to rest =Area of $\triangle$OCD

$= (\frac{1}{2}) \times$ OD $\times$ OA

$= (\frac{1}{2}) \times$ 10 s $\times$ 3 kmh^{-1}

$= (\frac{1}{2}) \times$ 10 $\times$ ($\frac{3 \times 1000}{3600}$) m

$= (\frac{1}{2}) \times$ 10 $\times$ ($\frac{5}{6}$) m

$= 5 \times (\frac{5}{6})$ m

$= \frac{25}{6}$ m

= 4.16 m

$\therefore$ Clearly the first car will travel farther(36.11 m)than the first car(4.16 m).

<div align="center">OR</div>

On taking the formula when both bodies are moving along same direction, we have

(a) Relative velocity of A with respect to B is -

$V_{AB} = V_A - V_A = 80 - 50 = 30$ km/h

Hence, the velocity of car A with respect to car B is 30 km/h in same direction.

(b) Relative velocity of B with respect to A is -

$V_{BA} = V_B - V_A = 50 - 80 = -30$ km/h

Hence, the velocity of car B with respect to car A is 30 km/h in opposite direction.

30. a. Promotes saving habits and judicial uses of resources and save resources

 b. Joule.

  c. • Switch off the power where it is not need.

    • Use of CFL light.

    • To check the proper wiring as to avoid leakage of power.

31. The velocity-time graph shows that the velocity of the ball at t = 0 is zero. So, the initial velocity of the ball, u = 0.

Velocity of the ball at t = 4 s is 20 m/s

i.e. final velocity, v = 20 m/s; time, t = 4 s

∴ Acceleration of the ball,

$a = \frac{v-u}{t} = \frac{20 m/s - 0}{4s} = 5 m/s^2$

Also, mass of the ball

$a = 100 g \Rightarrow \frac{100}{1000} kg = \frac{1}{10} kg$

∴ Force acting on the ball,

F = ma

$F = \frac{1}{10} kg \times 5 m/s^2$

= 0.5 kg-m/s^2 = 0.5 N [∵ 1 kg-m/s^2 = 1 N]

32. Prokaryotic cells are incomplete cells. They do not have membrane bound organelles. For ex-Bacteria, Mycoplasma, etc.

**Eukaryotes** can be single-celled or multi-celled, such as you, me, plants, fungi, and insects.

| S.No	Prokaryotic	Eukaryotic Cell
1.	Nucleus is Absent	Nucleus is Present
2.	It is a Unicellular	It is a multicellular
3.	Mitochondria Absent	Mitochondria Present
4.	Cell size is 1-10 Um	Cell size is 10-100 Um
5.	These are incomplete cells.	These are complete cells.
6.	Their genetic material is not bounded by membrane, called nucleoid.	Genetic material is bounded by nuclear membrane, called nucleus
7.	It contain single chromosome	It contains more than one chromosome.

OR

After adding salt, the concentration of solvent decreases, hence water form vegetable move out from higher concentration to lower concentration.
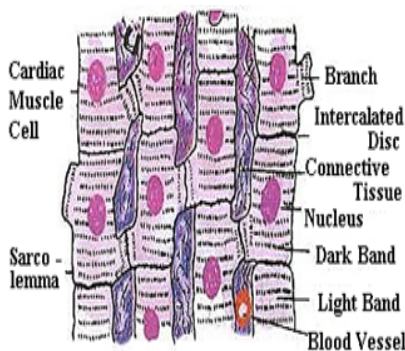
33.
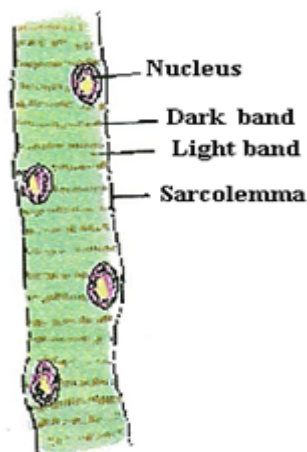
Striated muscle fibre
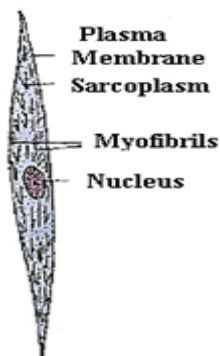

Smooth muscle fibre

Cardiac muscle fibres

Section D

34. Since the weight of any person on the moon is about 1/6 times that on the earth, hence acceleration due to gravity at the moon is 1/6 of that on earth. This means that by applying the same force a person can lift six times heavier objects on the moon than what he could lift on the earth. So, the maximum mass which can be lifted by the same force applied by the person on the moon is 6×15 kg = 90 kg.

OR

| Mass	Weight
Mass is a property of matter. The mass of an object is the same everywhere,	Weight depends on the effect of gravity. Weight varies according to location.
Mass can never be zero.	Weight can be zero if no gravity acts upon an object, as in space.
Mass does not change according to location.	Weight increases or decreases with higher or lower gravity.
Mass is a scalar quantity. It has magnitude.	Weight is a vector quantity. It has magnitude and is directed toward the center of the Earth or other gravity well.
Mass may be measured using an ordinary balance.	Weight is measured using a spring balance.
Mass usually is measured in grams and kilograms.	Weight often is measured in newtons, a unit of force.

35. Figure: An eukaryotic nucleus
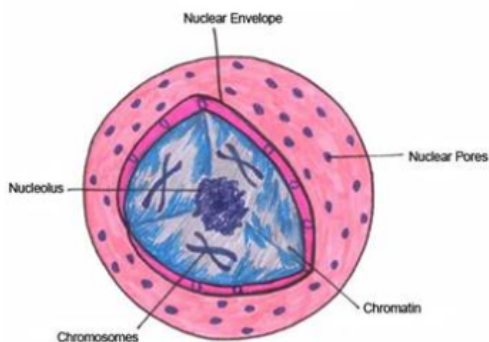
Nucleus	Nucleoid
Nuclear membrane is present.	Nuclear membrane absent.
Nucleolus present.	Nucleolus absent.
Genetic materials are enclosed in nucleus.	Genetic materials are not contained in any closed structure.
Found in eukaryotes.	Found in prokaryotes.

OR

Diagram of an animal cell is given below:

36. **Part A:** $Fe + S \xrightarrow{\Delta} FeS$

$FeS + 2HCL(dil.) \rightarrow FeCl_2 + H_2S\uparrow$
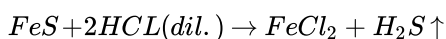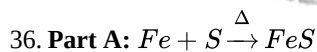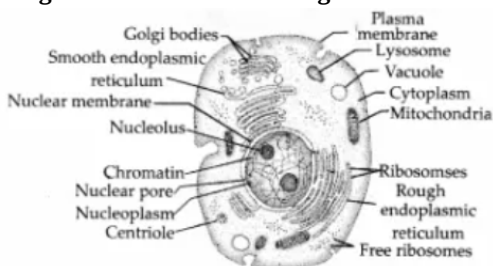
Here H_2S gas is produced, which is identified by its characteristic smell of rotten eggs.

Part B: $Fe + S \rightarrow mixture$

$Fe + S + 2HCL(dil.) \rightarrow FeCl_2 + H_2\uparrow$
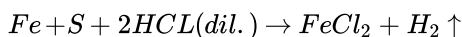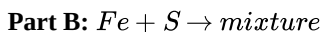
Here H_2 gas is produced. Hydrogen gas is tested by bringing a burning matchstick near the mouth of the test tube. It burns with a pop sound and water is formed.

Section E

37. i. (A) - cell body and (B) - dendrites.
  ii. Nervous tissue are highly specialized for being stimulated and then transmitting the stimulus very rapidly from one place to another within the body.
  iii. Brain, spinal cord and nerves are composed of nervous tissue.
  OR
  Nerve impulse allows us to move rapidly which is produced by combination of nerve and muscle tissue.

38. i. Egg-laying poultry birds are called **layers.**
  ii. The specialized meat-producing poultry birds are called **broilers.** Broilers are quick growing birds which are raised for 6-8 weeks. Their food is rich in vitamin A and K.
  iii. The tremendous rise in the availability of poultry products is called Silver Revolution.
  OR
  Following are the example of poultry birds
  Indigenous breed: Assel and Kadaknath.
  Exotic breed: Rhode island red and Light Sussex.

39. i. Since blood is a colloid, so tyndall effect is observed when a beam of light is passed through it since the dispersed particles of a colloid are large, deflect light.
  ii. The phenomenon by which the colloidal particles scatter light is called Tyndall effect. If light is passed through a colloid the light is scattered by the larger colloidal particles and the, beam becomes visible.

iii. Colloidal solutions area mixture in which the substances are regularly suspended in a fluid. A colloid is a very tiny and small material that is spread out uniformly all through another substance.

OR

Fog: Liquid (water drops) acts as dispersed phase and gas (air) as the dispersion medium.