CBSE Class 09

Science

Sample Paper 3 (2019-20)

Maximum Marks: 80

Time Allowed: 3 hours

General Instructions:

i. The question paper comprises three sections - A, B and C. Attempt all the sections.
ii. All questions are compulsory. Internal choice is given in each section.
iii. All questions in Section A are one-mark questions comprising MCQ, VSA type and assertion-reason type questions. They are to be answered in one word or in one sentence.
iv. All questions in Section B are three-mark, short-answer type questions. These are to be answered in about 50 - 60 words each.
v. All questions in Section C are five-mark, long-answer type questions. These are to be answered in about 80 – 90 words each.
vi. This question paper consists of a total of 30 questions.

Section A

1. Which isotope of hydrogen is present in heavy water?

2. Name the Indian philosopher who proposed the theory of matter.

3. **Crop Production Improvement**
   It involves different practices carried out by the farmer to achieve higher standards of crop production. Main practices involved in crop production management are Nutrient Management, Irrigation, and Cropping Patterns.
   Nutrient Management
   Like other organisms, plants also require some elements for their growth. These elements are called Nutrients. There are sixteen nutrients which are essential for plants. These nutrients are divided into the following two categories:

   - **Macronutrients:** The essential elements, which are utilized by plants

relatively in large quantities, are called macronutrients.

- **Micronutrients:** The essential elements, which are used by plants in small quantities, are called micronutrients.

These nutrients are supplied to plants by air, water and soil.

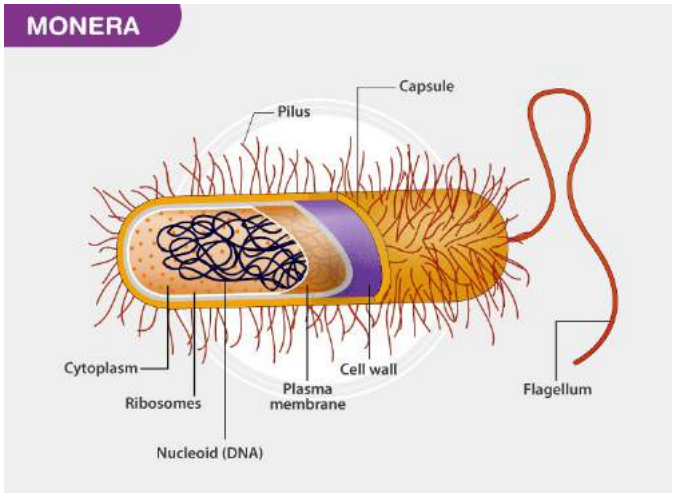
Sources	Nutrients
Air	Carbon, Oxygen
Water	Hydrogen, Oxygen
Soil	**Macronutrients:** Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, Sulphur.
	Micronutrients: Iron, Manganese, Boron, Zinc, Copper, Molybdenum, Chlorine.

Answer the following questions:

i. Differentiate between macronutrients and micronutrients.
ii. List all macronutrients.
iii. List all micronutrients.
iv. _____ is the main source of Carbon and Oxygen.

4. Kingdom Monera belongs to the prokaryote family. The organisms belonging to this kingdom do not contain a true nucleus. These are the oldest known microorganisms on earth. Their DNA is not enclosed within the nucleus.

   They are unicellular organisms found mostly in a moist environment. They are found in hot springs, snow, deep oceans or as parasites in other organisms. The monerans do not possess any membrane-bound organelles.



Answer the following questions:

i. Why does the DNA of Monerans is not enclosed within the nucleus?
ii. Why are they regarded as primitive organisms?
iii. Where are they found commonly?
iv. Give the unique characteristics of Monerans.

5. When no external force acts on an object, the physical quantity that remains conserved is

a. force

b. momentum

c. acceleration

d. velocity

OR

Inertia is the property of a body by virtue of which the body is

a. unable to change by itself the state of rest
b. all of these
c. unable to change itself the state of motion
d. unable to change itself the direction of motion

6. A machine does 192 J of work in 24 Sec. What is the power of the machine?

a. 18 w

b. 4w

c. 0 w

d. 8 w

7. The rate of doing work is called _____

   a. energy
   b. power
   c. body

   d. motion

8. During a thunderstorm, one observes lightning first and then hears the thunder, though both occur simultaneously. This is because

   a. Light travels speed = sound speed

   b. Light travels faster than sound

   c. Eye cells are more active

   d. Light travels slower than sound

OR

What do you mean by buoyancy?

9. Which of the following is incorrect match?

   a. Rice –Vikram
   b. Wheat –Sharbati Sonora
   c. Maize –Ganga 5
   d. Soyabean – Pusa 24

10. The components of a mixture of iron filings and sulphur powder are separated by:

    a. sublimation

b. distillation

c. using a magnet

d. filtration

11. Which one of the following is not important for individual health?

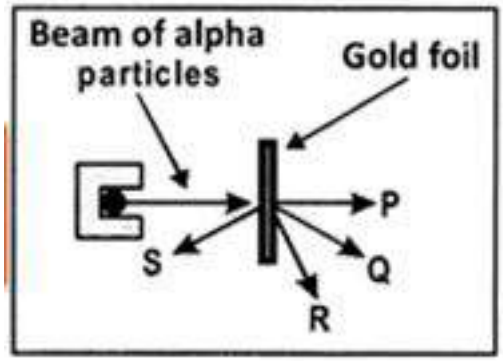
a. Living in clean space

b. Living in a large and well-furnished house

c. Good economic conditions

d. Social equality and harmony

12. A beam of alpha-particles is fired at a piece of gold foil as shown below. After striking the gold foil, in which direction do most of the alpha-particles travel?



a. S

b. P

c. R

d. Q

OR

Which of the following is not a chemical change?

A. Changing of milk into curd

B. Freezing of water

C. Burning of paper
D. Mixing of iron filling and sand

a. B and D

b. A, B and D

c. Only B

d. All of these

13. **Assertion:** Ice has lower density than water.

    Reason: As the volume of a substance increases, its density increases.

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

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

    c. Assertion (A) is true but reason (R) is false.

    d. Assertion (A) is false but reason (R) is true.

14. **Assertion:** Rocket in flight is not an illustration of the projectile.
    Reason: Rocket takes flight due to combustion of fuel and does not move under the gravity effect alone.

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

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

    c. Assertion (A) is true but reason (R) is false.

    d. Assertion (A) reason (R) both are false.

15. i. Name the month during which Kharif crop is grown.

ii. List any two factors for which crop variety improvement is done.

16. Write the chemical formulae of the following compound, using the criss-cross method.

    i. Magnesium bicarbonate
    ii. Barium nitrate
    iii. Potassium nitrate

OR

Which of the following electronic configurations is wrong and why?
(a) 2, 8, 2
(b) 2, 8, 8, 2
(c) 2, 8, 9, 1

17. A rocket of 3×10^6 kg mass takes off from a launching pad and acquires a vertical velocity of 1 kms^{-1} at an altitude of 25 km.
    Calculate

    a. Potential energy
    b. Kinetic energy. (Take the value of g = 10 ms^{-2})

18. Following are a few organisms
    (a) lichen
    (b) mosses
    (c) mango tree
    (d) cactus
    Which among the above can grow on stones and also help in formation of soil? Write the mode of their action for making soil.

OR

    i. Enumerate some differences between nitrification and denitrification processes.
    ii. State the importance of the nitrogen cycle for living organisms.

19. What is ATP? Write its full form.

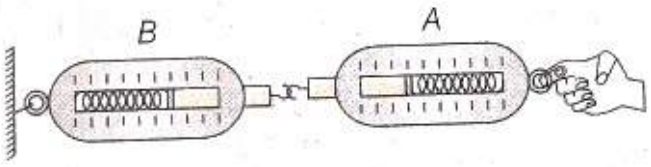
20. Give three features of cardiac muscles.

21. The solubility of sodium chloride in water increases with rise in temperature while that of lithium carbonate decreases. Give reason.

22. A ball is thrown vertically upwards. The speed of the ball was 10m/s when it had reached one half of its maximum height.

    i. How high does the ball rise?Take g= $10ms^2$
    ii. Find the velocity and acceleration 1s after it is thrown.

23. Look at the diagram below and answer the following questions:



    i. When a force is applied through the free end of the spring balance A, then the reading on the spring balance A is 15 g-wt. What will be the measure of the reading shown by spring balance B?
    ii. Write the reasons for your answer.
    iii. Name the force that balance A exerts on balance B and the force of balance B on balance A.

24. A car is moving on a levelled road and gets its velocity doubled. In this process,

    i. How would the potential energy of the car change?
    ii. How would the kinetic energy of the car change?
    iii. How will its momentum change? Give reasons for your answer.

OR

In the following table, the mass numbers and the atomic numbers of certain elements are given.

Element	A	B	C	D	E
Mass no.	1	7	14	40	40

At. no.	1	3	17	18	20

i. Select a pair of isobars from the above table.
ii. What would be the valency of element C listed in the above table?
iii. Which two sub-atomic particles are equal in number in a neutral atom?

25. Which separation techniques will you apply for the separation of the following?

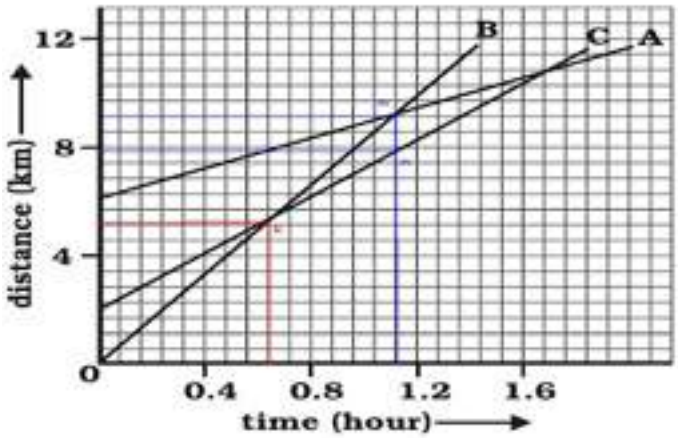
i. Sodium chloride from its solution in water.
ii. Ammonium chloride from a mixture containing sodium chloride and ammonium chloride.
iii. Small pieces of metal in the engine oil of a car.
iv. Different pigments from an extract of flower petals.
v. Butter from curd.
vi. Oil from water.
vii. Tea leaves from tea.
viii. Iron pins from sand.
ix. Wheat grains from husk.
x. Fine mud particles suspended in water.

OR

Classify each of the following as a physical or a chemical change. Give reasons.

i. Drying of a shirt in the sun.
ii. Rising of hot air over a radiator.
iii. Burning of kerosene in a lantern.
iv. Change in the colour of black tea on adding lemon juice to it.
v. Churning of milk cream to get butter.

26. Fig shows the distance-time graph of three objects A, B and C. Study the graph and answer the following questions:



a. Which of the three is travelling the fastest?
b. Are all three ever at the same point on the road?
c. How far has C travelled when B passes A?
d. How far has B travelled by the time it passes C?

27. i. Which process in meristematic tissue converts it to permanent tissue?
ii. Which feature of meristematic tissue helps aquatic plants to maintain buoyancy in water?
iii. Why epidermis of plants living in dry habitats is thicker?
iv. Identify the following.
    a. Living component of xylem
    b. Dead element of phloem
v. Which type of conducting tissues conduct water and minerals vertically?

28. Differentiate between the following:

i. Acute disease and chronic disease.
ii. Infectious disease and non-infectious disease.
iii. Symptom-based treatment and microbe based treatment.
iv. Antibiotics and vaccines.
v. Congenital disease and acquired disease.

OR

What are the characteristics of kingdom Monera?

29. i. A person weighs 110.84 N on the moon, whose acceleration due to gravity is 1/6 of

that the earth. If the value of g on the earth is 9.8 m/s^2, then calculate

a. g on the moon
b. mass of person on the moon
c. weight of person on the earth

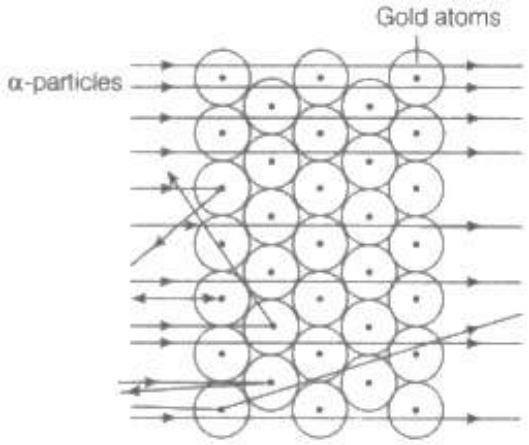
ii. How does the value of g on the earth is related to the mass of the earth and its radius? Derive it.

30. i. Which popular experiment is shown in the figure?

ii. List three observations of this experiment.

iii. State the conclusions drawn from each observation of this experiment.

iv. State the model of the atom suggested on the basis of the experiment.



OR

i. How do we express number of particles in terms of moles?

ii. Calculate the number of moles of sodium in a sample containing 10^{20} atoms of sodium.

iii. How do we express mass of a substance in terms of moles?

iv. Calculate the number of moles in

a. 56 g of He
b. 23 g of Na

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Solution

Section A

1. Among the three isotopes of hydrogen, **deuterium** $\left({}_{1}^{2}H\right)$ is found in heavy water (deuterium oxide). Heavy water is composed of deuterium - the hydrogen isotopes with a mass double that of ordinary hydrogen - and oxygen.

2. Kanad proposed the theory of matter around 600 BC.

3. i. **Macronutrients:** The essential elements, which are utilized by plants relatively in large quantities, are called macronutrients.
   Micronutrients: The essential elements, which are used by plants in small quantities, are called micronutrients.
   ii. **Macronutrients:** Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, Sulphur along with Carbon, Hydrogen and Oxygen.
   iii. **Micronutrients:** Iron, Manganese, Boron, Zinc, Copper, Molybdenum, Chlorine.
   iv. Air.
4. i. The DNA of Monerans is not enclosed within the nucleus because they do not have a true nucleus.
   ii. They are regarded as primitive organisms due to the absence of a true nucleus.
   iii. They are found in hot springs, snow, deep oceans, or as a parasite in other organisms.
   iv. The unique characteristics of Moneransis as follows:
      a. Absence of true nucleus,
      b. Found in a moist environment,
      c. Do not possess any membrane-bound organelles.
5. (b) momentum
   Explanation: Momentum remains conserved in absence of any external force. Momentum is the product of the mass and velocity of an object. It is a three-dimensional vector quantity, possessing a magnitude and a direction.

OR

(b) all of these **Explanation:** Inertia is the property of a body by virtue of which the body is unable to change the state of rest or state of motion and direction as inertia is the tendency to oppose the change in state or direction.

6. (d) 8 w
   Explanation: P = $\frac{W}{t} = \frac{192J}{24\ sec}$ = 8w
7. (b) power **Explanation:** Power is defined as the rate of doing work or rate of transfer of energy.
8. (b) Light travels faster than sound
   Explanation: During thunderstorm, we observe lightening first and hears the sound of thunder later, although both occurs simultaneously because light travels much faster than sound. The speed of sound through air is about 340 ms^{-1}. The speed of light in air is about 300 million meters per second. Therefore, light travels faster than sound.

OR

When an object is immersed partially or fully in a liquid, it experiences an upward force. This upward force is known as buoyant force and this phenomenon is known as buoyancy. Buoyancy is also known as upthrust

9. (a) Rice –Vikram **Explanation:** Sharbati sonora refers to a variety of wheat. Ganga 5 improved verity of Maize. Pusa 24 is a a verity of Soyabean. Vikram is not a types of rice.
10. (c) using a magnet
    Explanation: Iron fillings are removed with the help of magnet due to their magnetic properties while sulphur is left behind as it lacks magnetic properties.
11. (b) Living in a large and well-furnished house
    Explanation: Health is a state of being well enough to function well physically, mentally and socially. It depends upon the surroundings or the environment. Living in a clean environment under good economic conditions, and social equality and harmony are important for individual health. Good economic conditions are needed so that an individual can work and earn, and get food for nutrition. Living in a large and well-furnished house is not important for individual health.
12. (b) P
    Explanation: After striking the gold foil, most of the alpha-particles travel in straight

lines because most of the atom is hollow and empty.

OR

(a) B and D

Explanation: B. Freezing of water D. Mixing of iron filling and sand because there is no change in chemical properties & No new substances are formed.

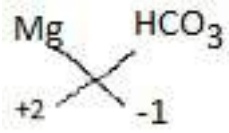
13. (c) Assertion (A) is true but reason (R) is false.

    Explanation: The mass per unit volume of a substance is called density (density = mass/volume). As the volume of a substance increases, its density decreases. When water changes into ice, space between particles increases. These spaces are larger as compared to the spaces present between the particles of water. Thus, the volume of ice is become greater than that of water. Hence, the density of ice became lower than that of water. As, a substance with lower density than water can float on water. Therefore, ice floats on water.

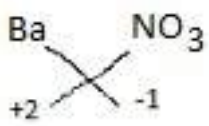
14. (a) Both assertion(A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

    Explanation: Motion of rocket is based on action-reaction phenomena and is governed by rate of fuel-burning causing the change in momentum of ejected gas.

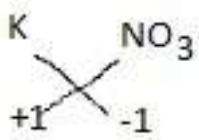
15. i. Kharif crop is grown during the months from June to October.
    ii. Two factors for which crop variety improvement is done are:
        a. **Higher yield-** To increase the productivity of crop per acre.
        b. **Improved quality-** The definition of quality is different for different crops, e.g. baking quality is important in wheat, protein quality in pulses, etc.

16. i. Charge 

    Formula $Mg(HCO_3)_2$

    ii. Charge 

    Formula $Ba(NO_3)_2$

    iii. Charge 

Formula KNO_3

OR

Electronic configuration 2, 8, 9, 1 is incorrect because after filling 8 electrons in third shell, the next two electrons fill the fourth shell to maintain the stability of the atom. Electronic configurations (a) 2, 8, 2 and (b) 2, 8, 8, 2 are correct.

17. Given : Mass of the rocket (m) = 3×10^6 kg. Height (h) = 25 km = 25×10^3 m
Acceleration due to gravity (g) = 10 ms^{-2}
P.E. of the rocket = mgh
= $3 \times 10^6 \times 10 \times 25 \times 10^3 = 7.5 \times 10^{11}$J
Now K.E. of the rocket
= $\frac{1}{2}mv^2 = \frac{1}{2} \times 3 \times 10^6 \times 10^6 = 1.5 \times 10^{12}$J
18. Lichens and mosses grow on rocks. They release chemical substances which break down the stones resulting in the formation of soil. Lichens grow on the rock surface, extract minerals from them. This creates small crevices at places where a thin layer of soil builds up. Mosses grow over these crevices and cause deepening of the crevices and result in build sup of more soil inside them. Deeper crevices form cracks and cracks become wider and deeper when the roots of short lived herbs pass into them. With the passage of time, the roots of bigger plants, (e.g., peepal, banyan tree) pass into the cracks. Cracks gradually widen and cause slow fragmentation and eventually pulverization of rocks.

OR

i. Differences between nitrification and denitrification are:

Notification	Denitrification
It is the process of conversion of ammonia to nitrites and to nitrates.	It is the process of reducing nitrates back into free atmospheric nitrogen.
This is an intermediate step of the nitrogen cycle in which nitrogen is converted into another usable form by bacteria, such as	This is the last step in which nitrogen is released back into its

Nitrosomonas.	source, ie. the atmosphere by pseudomonas (bacteria).

ii. Nitrogen cycle is important to maintain the overall amount of nitrogen content in soil, water and air. Living organisms cannot utilise nitrogen without the nitrogen cycle.

19. Energy-rich molecules are called ATP. ATP is called energy currency of the cell. ATP stands for Adenosine Triphosphate
20. (i) **Cells/ Fibres:** They are small, cylindrical, uninucleate striated with short lateral branches.
    (ii) **Intercalated Disc:** In the area of union between the two adjacent cardiac muscle fibres develop zig-zag junctions called intercalated discs. They function as impulse boosters.
    (iii) **Rhythmic Contractions:** The muscles are involuntary and non-fatigued which continue to contract and relax tirelessly throughout life.
21. When sodium chloride is dissolved in water, the process is endothermic in nature. This means that heat energy is absorbed in the process. Therefore, solubility increases with rise in the temperature. In case of lithium carbonate, the process of dissolution is exothermic. This means that heat is evolved in the process. Therefore, its solubility in water decreases with rise in temperature.
22. Let the initial velocity = u
    Let the maximum height reached = h m
    When it reached , the velocity = 10m/s
    Now $v^2 = u^2 + 2gh$
    $(10)^2 = (u)^2 + 2\,(-10) \times \frac{h}{2}$
    $(u)^2 = 100 + h \times 10$ When the ball reaches the highest point, v = 0
    $v^2 - u^2 = 2gh$
    $o^2 - u^2 = 2(-10)h$
    $-u^2 = -2(10)h$
    $\Rightarrow (100 + 10h) = 20h$
    $100 = 20h - 10h$
    $100 = 10h$
    Height = 10 m
    Maximum height reached = 10m $u^2 = 100 + 10h$

$u^2 = 100 + 10 \times 10$

$u^2 = 200$

$u = \sqrt{200} = 14.14 m/s$

Initial velocity of the ball when it was thrown up = 14.14 m/s.

Velocity after 1s

$v = u + at$

$v = 14.14 + (-10) \times 1$

$= 4.14 m/s$

Acceleration after 1s = -10m/s^2

23. i. 15 g-wt.
    ii. From Newton's third law, the force exerted by B on A and force exerted by A on B are equal.
    iii. Force of reaction balance A exerts on balance B and force of action balance B exerts on balance A.
24. i. The potential energy of the car remains the same since PE (=mgh) is independent of velocity.
    ii. The kinetic energy of the car becomes four times, since $KE = (\frac{1}{2}mv^2)$ is proportional to square of velocity.
    iii. The momentum of the car will also get doubled since momentum (p = mv) is proportional to velocity.

OR

i. D and E have the same mass number but different atomic numbers. Hence, they are a pair of isobars.
ii. Electronic configuration of C is 2(K), 5(L). Hence, its valency is three because it gains three electrons to attain a stable electronic configuration.
iii. For a neutral atom, Number of electrons = Number of protons
Thus, electrons and protons are equal in numbers in a neutral atom.

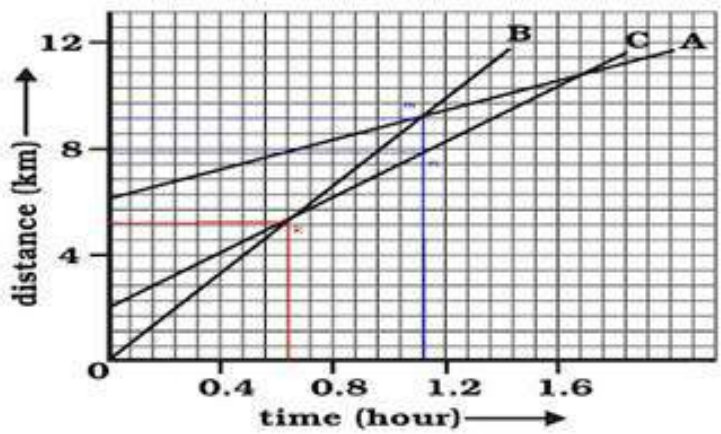
25. i. Evaporation and crystallization
    ii. Sublimation
    iii. Filteration
    iv. Chromatography
    v. Centrifugation

vi. By using separating funnel
vii. Filteration
viii. Magnetic separation
ix. Winnowing
x. Loading and decantation

OR

i. It is a physical change because moisture in the shirt is converted from its liquid state to gaseous state because of the heat of the Sun.
ii. It is a physical change because water in the radiator is converted from a liquid state to gaseous state.
iii. It is a chemical change because combustion of kerosene occurs and new products are formed.
iv. It is a chemical change because there is a reaction between citric acid present in lemon and the compounds of the tea resulting in the formation of new products.
v. It is a physical change because the cream suspended in milk is separated by churning (centrifugation).

26.



a. It is clear from graph that B covers more distance in less time. Therefore, B is the fastest.
b. All of them never come at the same point at the same time.
c. According to graph; each small division shows about 0.57 km.
A is passing B at point S which is in line with point P (on the distance axis) and shows about 9.14 km
Thus, at this point, C travels about
9.14 - (0.57x3.75)km

= 9.14 km - 2.1375 km = 7.0025 km $\approx$ 7 km

Thus, when A passes B, C travels about 7 km.

d. B passes C at point Q at the distance axis which is

$\approx 4km + 0.57\text{km} \times 2.25 = 5.28\text{km}$

Therefore, B travelled about 5.28 km when passes to C.

27. i. Differentiation is the process by which meristematic tissue takes up a permanent shape, size and function.

ii. Large air cavities present in parenchyma (aerenchyma) of aquatic plants help the plant to maintain buoyancy in water.

iii. Epidermis of plants living in dry habitats are thicker in order to prevent loss of water.

iv. a. Xylem parenchyma consists of living cells having thin cell walls.

b. Phloem fibres are the dead element of phloem.

v. Tracheids and vessels of xylem are the two conducting tissues, which conduct water and minerals vertically.

28. i. **Acute disease**:- Lasts for a very short period of time.

Chronic disease:- Lasts for a long period of time, maybe for a lifetime.

ii. **Infectious disease:-** Spreads from one person to another.

Non-infectious disease:- Does not spread from one person to another.

iii. **Symptom-based treatment:-** Medicines are given to reduce the effects of the disease.

Microbe based treatment:- Medicines are given to kill the microorganism.

iv. **Antibiotics:-** Medicines given after the disease to kill the microbes.

Vaccines:- Vaccines are given before the disease to build immunity against the disease.

v. **Congenital disease:-** This disease is present at the time of birth.

Acquired disease:- This is caused after birth due to the malfunctioning of organs or microbes.

OR

(i) The organisms do not possess a clearly defined nucleus, i.e., the nucleus is not enclosed by a nuclear membrane.

(ii) Cell organelles are also not covered with a membrane.

(iii) Organisms are unicellular, microscopic prokaryotes living in moist conditions.

(iv) Cell wall may or may not be present.

(v) The mode of nutrition may be autotrophic or heterotrophic.

(vi) Reproduction is primarily asexual by binary fission or budding.

29. The value of g on the earth is 9.8 m/s^2

i. a. g on the moon is given by

g' = $\frac{g}{6}$ = $\frac{9.8}{6} = 1.63$ m/s^2

b. Mass of the person on the moon = $\frac{110.84}{1.63} = 68$ kg

c. Mass will be constant and does not change from place to place. Hence the mass of the person on the earth is the same that on the moon.

Weight of person on the earth $= mg = 68 \times 9.8$ = 666.4 N

ii. According to the Newton's law of gravitation, the force of attraction between earth and the body is given by

F = $\frac{GMm}{R^2}$ ...(i)

where, M = mass of the earth, R = radius of the earth, m = mass of person and G = 6.67 $\times$ 10^{-11} N-m^2/kg^2

Force produces an acceleration 'g'. So from Newton's second law, F = mg ....(ii)

Equating (i) and (ii) we get,

mg = $\frac{GMm}{R^2}$

$\therefore$ g = $\frac{GM}{R^2}$

30. i. This figure shows a scattering of a-particles by a gold foil which is known as the Rutherfords experiment α-particle scattering experiment.

ii. Following observations were made by Rutherford:

a. Most of the fast-moving a-particles passed straight through the gold foil.

b. Some of the a-particles were deflected by the foil by small angles.

c. Very few a-particles (one out of 12000) appeared to rebound

iii. On the basis of the Rutherford experiment, he concluded that:

a. Most of the space inside the atom is empty because most of the a-particles passed through the gold foil without getting deflected.

b. Very few particles were deflected from their path, indicating that the positive charge of the atom occupies very little space.

c. A very small fraction of OC-particles were deflected by 180° (i.e. they rebound),

indicating that all the positive charge and mass of atom were concentrated in a very small volume within the atom.

iv. On the basis of his experiment, Rutherford put forward the nuclear model of an atom, having the following features:
   a. There is a positively charged, highly dense centre in an atom, called nucleus. Nearly, the whole mass of the atom resides in the nucleus.
   b. The electrons revolve around the nucleus in a circular path.
   c. The size of the nucleus (10-10 m) is very small as compared to the size of the atom (10^{-10} m).

OR

i. Number of moles = $\frac{Given\ number\ of\ particles}{Avogadro's\ number}$

ii. Number of moles = $\frac{Number\ of\ atoms\ of\ sodium}{Avogadro's\ number\ of\ particles}$

$= \frac{1.0 \times 10^{20}\ \text{atoms}}{6.022 \times 10^{23}\ \text{atoms}} = 1.66 \times 10^{-4}$ mol

iii. Number of moles = $\frac{Given\ mass}{Gram\ atomic\ mass}$

iv. a. Number of moles = $\frac{Mass\ of\ He}{Gram\ atomic\ mass\ of\ He} = \frac{56}{4} = 14$ mol

b. Number of moles = $\frac{Mass\ of\ Na}{Gram\ atomic\ mass\ of\ Na} = \frac{23}{23} = 1$ mol.