PRE-ANNUAL 2025-26
SUBJECT: SCIENCE
CLASS IX

Time: 03 hrs. MM:80

General Instructions:

1. The question paper is divided into three sections - Biology, Chemistry, and Physics.
2. Marks are indicated against each question.
3. All questions are compulsory.
4. Draw and label diagrams wherever required.

Section A

Biology 30m

1. Which of these is NOT a function of Ribosome? (1m)
   (i) It helps in the manufacture of protein molecule.
   (ii) It helps in the manufacture of enzymes.
   (iii) It helps in the manufacture of hormones.
   (iv). It helps in the manufacture of starch molecules.
   Options:
   (a) (I) an (II) (b)(II) and (III) (c)(III) and (IV) (d)(I) and (IV)

2. Match the following with the correct response: (1m)

Column I	Column II
(P) Tendons	(i) Chondrocytes
(Q) Ligaments	(ii) White fibres
(R) Cartilage	(iii) Osterocytes
(S) Bones	(iv) Yellow fibres

   Options:
   (a) (P)-(i), (Q)-(iii), (R)-(ii), (S)-(iv)
   (b) (P)-(ii), (Q)-(iv), (R)-(i), (S)-(iii)
   (c) (P)-(iii), (Q)-(ii), (R)-(iv), (S)-(i)
   (d) (P)-(iv), (Q)-(i), (R)-(iii), (S)-(ii)

3. Match Column A with Column B and choose the correct options from the codes given below: (1m)

Column A	Column B
(P) Biofertilizers	(i) Crossing between two different plants
(Q) Macronutrients	(ii) Required in small quantities
(R) Micronutrients	(iii) Rhizobium, Azotobacter
(S) Hybridization	(iv) Required in large quantities

Codes:

(a) (P)-(ii), (Q)-(iv), (R)-(i), (S)-(iii)
(b) (P)-(i), (Q)-(ii), (R)-(iii), (S)-(iv)
(c) (P)-(ii), (Q)-(iii), (R)-(iv), (S)-(i)
(d) (P) -(iii), (Q)-(iv), (R)-(ii), (S)-(i)

why are

4. Which of the following cell functions will stop if its mitochondria is destroyed? (1m)

(i)Formation of complex sugars (ii)Lipid metabolism
(iii)Protein synthesis (iv)ATP synthesis

5. Fats are stored in human body as: (1m)

(i) Cuboidal epithelium (ii)Adipose tissue
(iii)Bone (iv)Cartilage

6. The Italian bees have high honey collection capacity. The scientific name of an Italian bee is: (1m)

(i)Apis dorsata (ii)Apis florae
(iii)Apis cerena indica (iv)Apis mellifera

7. Undefined nuclear region of Prokaryotes is called: (1m)

(i)Nucleus (ii)Nucleolus
(iii)Nucleic acid (iv)Nucleoid

8. Assertion (A): The permeability of the cells play an important role in regulating the exchange of the materials between the body and the external environment.

Reason (R): Anything entering or leaving the body must cross at least one layer of epithelium. (1m)

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

9.Consider the following Assertion-Reasoning question:

Assertion (A):

Use of manure improves soil fertility.

Reason (R)
Manure increases the water-holding capacity of soil and replenishes essential nutrients. (1m)

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.

10.Write main differences between plant cells and animal cells. (2m)

11."Blood is the river of life". Justify the statement. (2m)

12.Differentiate between Apical and Lateral Meristem on the basis of their location and function in the plant. (2m)

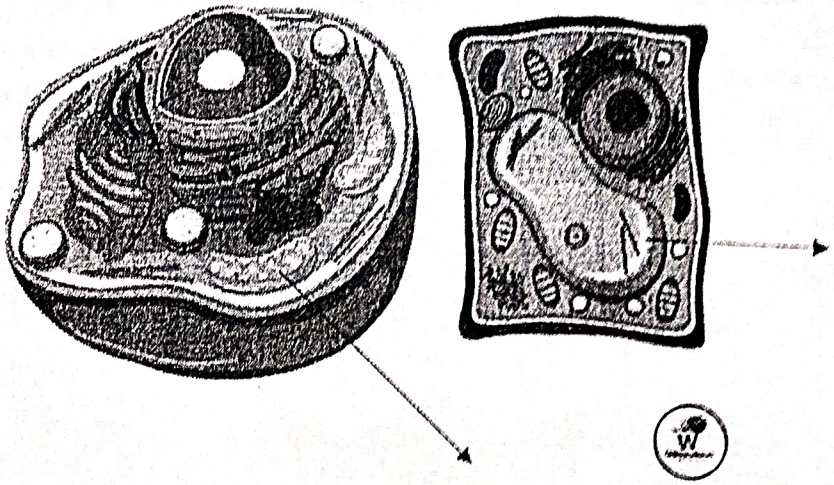
13.(a) What factors may be responsible for losses of grains during storage?
(b) What precautions must be taken to prevent losses of grains? (2m)

14.Give three features of cardiac muscles. (3m)

OR

14 (a) Identify and label the cell organelles shown in the diagram below. (1m)
(b) What are the differences between plant cells and animal cells? (1m)
(c) What is the function of chloroplasts in plant cells? (1m)

PLANT CELL AND ANIMAL CELL DIAGRAM



15.Bulbul's mother asked her to order some vegetables from a mobile app. When she searched for vegetables, she saw some specific vegetables with "Organically Produced" subscript.

(a) What is specific about vegetables that are produced organically. Explain.(2m)

(b)How are organically grown crops different from genetically modified crops? (2m)

16.Fish is a cheap source of animal protein for our food. Fish production includes finned as well as shellfish.

(a) How are fish obtained? (2m)
(b) Name two varieties each of marine fishes of high economic value and freshwater fishes. (2m)
(c) Define mariculture. (1m)

OR

Ramesh is a fish farmer who owns a large freshwater pond. Earlier, he used to culture only one species of fish, but the production was low and the available food in the pond was not fully utilised. On the advice of an agricultural expert, he started practicing composite fish culture by introducing different species of fish that feed at different levels of the pond.

Based on the above passage, answer the following questions:

(a) What is composite fish culture? (1m)
(b) Why was the production low when only one species of fish was cultured?(1m)
(c)Name any two fish species used in composite fish culture and mention their feeding zone. (2m)
(d)State one advantage of composite fish culture over monoculture. (1m)

Section B

Chemistry

Max. Marks: 25

Q.1 A few substances are arranged in the increasing order of force of attraction between their particles. Which of the following represent a correct arrangement?

a) Water, air , land
b)Air, sugar, oil
c)Oxygen , water, sugar
d)Salt, juice ,air

Q.2 A solution of sulphur and carbon disulphide is

a. Heterogenous and shows Tyndall effect.
b. Heterogenous and does not show Tyndall effect.
c. Homogenous and show Tyndall Effect
d. Homogenous and does not show Tyndall effect.

Q.3 The chemical symbol for ~~natural gas~~ nitrogen gas is

a.Ni b. N_2 c. N^+ d. N^-

Q.4 Assertion and Reason Based Questions: Answer the questions selecting the appropriate option given below:

Assertion: At normal pressure (1 atm) , the boiling point of water is 100° C or 373.15 K
Reason : The atmospheric pressure at sea level is 1 atm and is taken as normal atmospheric pressure.

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 and R is true.

Q.5. If the formula of a metal M is MCl_3, then what will be the formula of the phosphate and carbonate of the metal M. 2

Q.6. a. Explain why particles of a colloidal solution do not settle down when left undisturbed, while in case of a suspension , they do.
b. A solution contains 30 g of common salt in 362 g of water. What will be the concentration of the solution?

Q.7 . In the following table, the mass number and the atomic number of certain elements are given: (1+1=2)

(a)Select the pair of isobars from the above table.

Elements	A	B	C	D	E
Mass no.	1	7	14	40	40
Atomic no.	1	3	7	18	20

(b)What would be the valency of the element B and E listed in the above table?

Q.8. Azhar made placards of different ions and is now trying to adjust them in the following manner. Help in to tabulate the given ions in their respective categories accordingly in symbolic form.

Aluminum ion ,oxide ion, ammonium ion, sulphide ion, Acetate ion and ferric ion.(3m)

Monoatomic	Diatomic	Triatomic

Q.9. a) $^{69}Ga_{31}$ and $^{71}Ga_{31}$ are isotopes of gallium. With reference to this example, explain what you understand by the term isotopes?
1+2=3

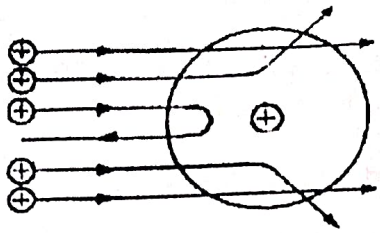
b) A sample of gallium contains 60% of $^{69}Ga_{31}$ and 40% of $^{71}Ga_{31}$. Calculate the relative atomic mass of this sample of Gallium.

OR

a) The relative atomic mass of an element is 63.5u and it exists as two isotopes which are $^{63}X_{29}$ and $^{65}Y_{29}$ then calculate the percentage of each present in it.

b) Write applications of isotopes of any two elements. 2+1=3

Q.10 a) Which popular experiment is shown in the figure? 5



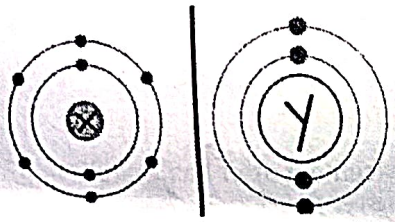
(b) State any two conclusions drawn from this experiment.

(c) What were the limitations of the model of atom suggested on the basis of the above experiment.

(d) An element X has atomic number 12 and mass no. 26 . Draw the diagram showing distribution of electrons in the orbits . What is the valency and valenve electron of this element?

OR

Rihana is trying to understand the concept of Bohr's Bury Rule. Her friend gave her these two diagrams and told to answer the following questions: 5



a) Write the names and symbols of X and Y.

b) What do you mean by the $2n^2$ formula?

c) How do X and Y atoms attain stable electronic configuration?

d) What are the limitations of JJ Thomson's model of an atom.

Q.11. Case Based question: 4

Calcium react with oxygen to form calcium oxide. It is observed when 5 g of calcium is burnt in 2 g of oxygen, then 7 g of calcium oxide is produced. In another experiment ,5 g of calcium is burnt in 20 g of oxygen. It is also known that calcium carbonate always contain 40% calcium, 12% carbon and 48% oxygen by mass.

Answer the following questions based on above information.

a. How much calcium oxide will be formed when 5g of calcium is burnt in 20 g of oxygen?
b. Which law of chemical combination is illustrated by these experiments?
c. State the law identified.
d. Write the chemical formula of calcium oxide with its formula unit mass. At. Mass Ca=40u, O=16u)

OR

d.Write the chemical formula of calcium carbonate with its formula unit mass. At mass Ca=40u, C=12u , O=16u

Section C

Physics 25m

1.The value of G on Earth is $6.67*10^{-11}Nm^2Kg^{-2}$. What will be the value of G on moon?

(a)$6.67*10^{-8}Nm^2Kg^{-2}$ (b) $6.67*10^{-9}Nm^2Kg$

(c)$6.67*10^{-10}Nm^2Kg^{-2}$ (d) $6.67*10^{-11}Nm^2Kg^{-2}$ (1)

1. Match the column 1 with the column 11 and select the correct option:

Column 1	Column 11
(A)Force	(i)Resist the change in the state of an object
(B)Acceleration	(ii)Kg m/s
© Momentum	(iii)m/s^2
(D) Inertia	(iv) Kgm/s^2

(a) (A)-(iii), (B)-(ii), (C)-(iv), (D)-(i)
(b) (A)-(iv), (B)-(iii), (C)-(ii), (D)-(i)
(c) (A)-(iv), (B)-(ii), (C)-(iii), (D)-(i)
(d) (A)-(iii), (B)-(i) ,(C)-(iv),(D)-(ii) (1)

3.A particle is moving in a circular path of radius r. The displacement after half a circle would be: (1)

(a) Zero (b) r

(c) 2 r (d) 2 r

4.Which of these represent a balanced force?

(a) A boy sitting on a chair (b) An object sinking in water

(c) An apple falling from a tree (d) A magnet attracting an iron nail (1)

5. A car got a flat tire. A and B are trying to move the car by 40m to reach the repair shop exerting a force of 10N and 15 N respectively. Ratio of work done by A and B is:

(a) 3:2 (b) 2:3 (c) 5:2 (d) 2:5 (1)

6. A body of weight W_1 displaces an amount of water W_2. If the body floats, then

(a) $W_1 > W_2$

(b) $W_1 < W_2$

© $W_1 = W_2$

(d) Both (a) and (c) (1)

Assertion and Reason Based Questions: Answer these questions (Q7-Q8) 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 and R is true

7. Assertion: If net external force acting on an object is zero, its acceleration is zero. (1)

Reason: Acceleration of an object does not depend on its mass.

8. Assertion: In long jump, the athlete is provided with a heap of sand on ground to prevent him/her from being hurt. (1)

Reason: The heap of sand increases the momentum of the athlete.

9. Answer the following questions:
   (a) Represent graphically two sound waves having same amplitude but different frequencies
   (b) Give any one use of Ultrasound. (2)

10. What should be the Power of the engine required to lift 90,000Kg of coal per hour from a mine whose depth is 200m? (2)

11. A train covers half of its journey with a speed of 20m/s and other half with a speed of 10m/s. Calculate the average speed of the train during the whole journey. (3)

12. A ball thrown up vertically returns to the thrower after 6 s. Find (3)

(a) the velocity with which it was thrown up,

(b) the maximum height it reaches, and

(c) its position after 4 s.

13. (a)A sound travels at a speed of 339m/s. If its wavelength is 3 cm, what is the frequency of the wave? Will it be audible?

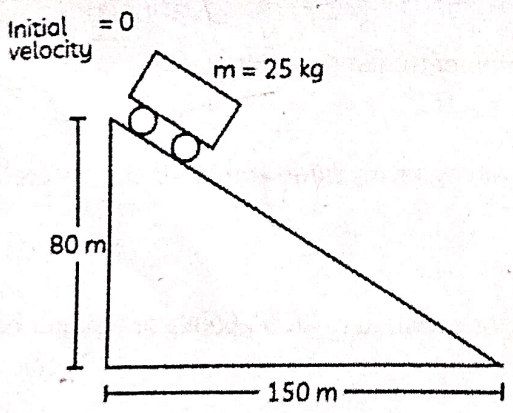
(b) A bullet of mass 10 g travelling horizontally with a velocity of 150 m s^{-1} strikes a stationary wooden block and comes to rest in 0.03 s. Calculate the distance of penetration of the bullet into the block. Also calculate the magnitude of the force exerted by the wooden block on the bullet. (5)

14. Case Based question: (4)

(Question 14.1- 14.3 are case based questions.)

Study the given figure and answer the questions that follows:

There is a trolley on the top of a slant slope at the height of 80m



14.1 Calculate the Potential energy when the trolley is at the top.

14.2 Name the energy transformation when the trolley comes down through the slope.

14.3 What is the velocity of the trolley when it reaches the bottom?

OR

14.3 what is the time taken by the trolley to reach the bottom of the slope.