PRE FINAL EXAMINATION – II

Class : X (SET - 1) **BOARD : CBSE** **Max. Marks : 80M**
Subject : General Science **2025 – 26** **Time : 3 Hrs.**

General Instructions :

i. This question paper consists of 39 questions in 3 sections.Section A is Biology, Section B is Chemistry and Section C is Physics.

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

SECTION - A (BIOLOGY)

Q.No. 1 to 7 are competency based multiple choice questions. Select and write one most appropriate option out of the four options given for each of the questions. **7 × 1 = 7 M**

1. Consider the following statements about the human circulatory system:
   i) Double circulation involves two circuits, the pulmonary circuit and the systemic circuit.
   ii) The pulmonary circuit transports blood between the heart and the lungs.
   iii) The systemic circuit transports blood between the heart and the rest of the body.
   iv) A major advantage of this system is the mixing of oxygenated and deoxygenated blood.

   Which of the above statements are correct? [ ]
   A. i and iv only B. ii and iii only C. i, ii and iii D. All are correct.

2. Which hormone is responsible for regulating blood sugar levels ? [ ]
   A. Adrenaline B. Insulin C. Thyroxine D.Estrogen

3. The protozoan Leishmania, causes the disease kala-azar, reproduces asexually by binary fission. What is a distinguishing feature of its division process? [ ]
   A. It occurs in a definite transverse plane due to its whip like flagellum.
   B. It occurs in a definite longitudinal plane due to its whip-like flagellum.
   C. It can divide in any plane, similar to Amoeba.
   D. It only divides after forming a protective cyst around itself.

4. What is the role of decomposers in an ecosystem? [ ]
   A. To serve as the primary source of energy for the food web.
   B. To control the population of producers by eating them.
   C. To fix atmospheric nitrogen for plants to use.
   D. To break down dead organic matter and recycle essential nutrients.

5. Read the following statements.

   A) The hormones are used by multicellular organisms for control and coordination show a great deal of diversity.

   B) When growing plants detects light, a hormone called auxin, is synthesised.

   Which of these statements (s) is/are correct ? [ ]

   A. A only B. B only C. Both A and B D.Neither A nor B

6. The inner lining of the small intestine is covered with millions of finger-like projections called villi. What is their primary function?

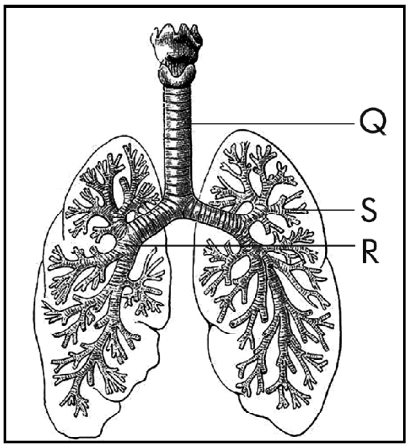
   A. To secrete mucus that lubricate the food. [ ]

   B. To increase the surface area for efficient absorption of digested food.

   C. To push the food forward through the process of peristalsis.

   D. To produce hydrochloric acid and kill bacteria.

7. Identify the correctly labelled parts Q, R and S in the picture given below.[ ]



   A. Q - Bronchus; R -Bronchiole; S -Trachea

   B. Q - Trachea; R - Bronchus; S - Bronchiole

   C. Q - Bronchiole; R - Trachea; S - Bronchus

   D. Q - Trachea; R - Bronchus; S – Alveolus

Q.No. 8 and 9 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below.

2 × 1 = 2 M

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.

8. **Assertion (A) :** Contraceptive devices can cause side effects.

   Reason (R) : Because of reckless female foeticides child sex ratio is declining at an alarming rate in some sections of our society. [ ]

9. **Assertion (A) :** The green plants in terrestrial ecosystem capture about 2% of the energy of sunlight that falls on their leaves. [ ]
Reason (R) : Food chains generally consist of only three to four steps.

Q. No. 10 to 12 are very short answer questions. Answer them in 30 to 50 words. **3 × 2 = 6 M**

10. Herbivorous animals like cows have a longer small intestine than carnivorous animals like tigers. Give reason.
11. Student to attempt either option A or B.
    A. What is lymph? State any two functions of it.

    (OR)

    B. Where body, size increases diffusion becomes insufficient for supplying oxygen to the cells of the body which specialised systems or parts, help large animals meet this requirement. Explain.
12. In humans, genetically the sex of a child is determined by the father and not by the mother. Support your answer using the schematic diagram.

Q. No. 13 and 14 are short answer type questions. Answer them in 50 to 80 words. **2 × 3 = 6 M**

13. What helps to shield the surface of the earth from ultraviolet radiation ? How does it affect any ecosystem ? Write the steps that are to be taken to limit the damage to this shield.
14. Can a recessive trait appear in the offspring even if it is not seen in the parents ? Justify your answer with the help of punnet square.

Q. No. 15 is case - based/data -based questions with 2 to 3 short sub parts. **1 × 4 = 4 M**

15. Each kidney has large number of filtrations units called nephrons. In human beings, excretory products in the form of soluble nitrogen compound are removed by the nephrons in the kidneys. The urine that is formed in each kidneys eventually enter the ureter which connects the kidney with urinary bladder. From the urinary bladder urine is sent out through urethra.
    A. Why does the body reabsorb water selectively instead of absorbing all of it.

    (OR)

    B. How can we control the urge to urinate ?

    C. Name the cup shaped structure where filtration of blood takes place ?

    D. Which factors determines how much water is reabsorbed from the filtrate ?

Q. No. 16 is long answer question. Answer it in 80 to 120 words.

1 × 5 = 5 M

16. A. Compare natural and artificial vegetable propagation in detail. Describe any two natural and two artificial methods.

(OR)

B. Explain the structure of a neuron with the help of a neat labelled diagram.

SECTION - B (CHEMISTRY)

17. Compound A on strong heating in a boiling tube gives off reddish brown fumes and a yellow residue with a few drops of sodium hydroxide solution, a white precipitate appeared. Identify the cation and anion present in the compound A.

A. Lead (II) and nitrate B. Zinc and sulphate [ ]

C. Lead (II) and chloride D. Copper (II) and nitrate

18. $CaCO_{3(s)} \xrightarrow{X} CaO_{(s)} + CO_{2(g)}$

$2AgCl_{(s)} \xrightarrow{Y} Ag_{(s)} + Cl_{2(g)}$

$2H_2O_{(l)} \xrightarrow{Z} 2H_{2(g)} + O_{2(g)}$

X, Y and Z respectively in the above equations is / are [ ]

	X	Y	Z
A.	Light	Electricity	Heat
B.	Heat	Light	Electricity
C.	Electricity	Heat	Light
D.	Heat	Electricity	Light

19. The equation between an acid and a base is [ ]

$XOH + HY \rightarrow XY + H_2O$

Which of the following is the cation part of salt ?

A. OH B. X C. Y D. H

20.

S. No	Solution	Colour of pH paper	Approximate pH value	Nature
1	X	Blue	7.1	Basic
2	Y	Red	2.2	Acidic
3	Z	Violet	14	Basic
4	W	Yellow	5	Acidic

Observe the above table and choose the correct statement with respect to X, Y, Z, W. [ ]

i) X can be saliva before meal

ii) Y can be Lemon juice which contains a weak organic acid-citric acid.

iii) Z can be a glass cleaner.

iv) 'W' can be vinegar.

A. ii, iii, iv only B. i, ii, iii only C. i, ii, iv only D. i, iii, iv only

21. If third member of alcohol family (homologous series) undergoes esterification reaction with second member of carboxylic acid family then, the name of ester formed and its formula will be respectively [ ]

A. Propyl ethanoate, $CH_3COOCH_2CH_2CH_3$

B. Ethyl propanoate, $CH_3CH_2COOCH_2CH_3$

C. Ethyl ethanoate, $CH_3COOCH_2CH_3$

D. Ethyl butanoate, $CH_3CH_2CH_2COOCH_2CH_3$

22. An element 'Y' is the most abundant metal in the earth's crust. It is extracted by the electrolytic reduction of its molten oxide. This metal readily forms a thin tough and non porous oxide layer on its surface upon exposure to air. Then choose the correct statement in respect of 'Y' [ ]

i) 'Y' is present between 'Mg' and Zn in the reactivity series.

ii) When Y combines with chlorine, it can form 'YCl_3'

iii) During the extraction of 'Y' the ions of 'Y' undergoes oxidation at cathode.

iv) 'Y' can be protected by Anodising process.

A. i, ii, iii only B. ii, iii, iv only

C. i, ii, iv only D. All

23. A functional group is an atom (or) a group of atoms within a molecule that is responsible for the characteristic chemical reactions of that molecule, for example,

– OH is alcohol, $\begin{matrix} \diagdown \\ C=O \\ \diagup \end{matrix}$ is ketone, – COOH is carboxylic acid.

Read the given statements carefully and choose correct ones. [ ]

i) For the organic compound CH_3CH_2OH, the other possible compound can be $CH_3 - O - CH_3$.

ii) For the organic compound $CH_3-CH_2-CH=CH_2$, the ring chain isomer is cyclo butane

iii) $C_2H_4O_2$ canbe represented as carboxylic acid and an ester.

iv) Benzene and cyclohexane shows similar chemical properties

A. i, ii only B. i, ii, iii only D. i, iii only D. All

24. **Assertion (A) :** Metals like sodium and potassium react with cold water and cathches fire [ ]

Reason (R) : The above reaction is highly exothermic as in nature

A. Both A and R are correct and R is the correct explanation of A

B. Both A and R are correct and R is not correct explanation of A

C. A is correct and R is incorrect

D. A is incorrect and R is correct.

25. Doctor apply wet surgical bandages on the fractured bones of a patient for supporting them in right position. What changes are likely to occur ? Write chemical equation for the reaction involved. **2M**

26. Kishan, while experimenting with metals saw that two metals reacted violently with cold water whereas the reaction of another metal was less violent. Another metal reacts with hot water and starts floating.

i) Identify metals in each case. **1M**

ii) and write balanced equations involved, **2M**

(OR)

A shining metal 'M', on burning gives a dazzling white flames and changes to a white powder 'N'.

a) Identify 'M' and 'N'. **1M**

b) Represent the above reaction in the form of a balanced chemical equation. **1M**

c) Does 'M' undergo oxidaiton or reduction in this reaction ? Justify. **1M**

28. Study these table related to answer the questions that follow :

	substance	**pH**	**Colour shown by universal indicator**
1.	A	6.5	Greenish yellow
2.	B	10.5	Navy blue
3.	C	0	Dard red
4.	D	8.5	Greenish blue
5.	E	4.0	Orange

Answer the questions giving examples in each case.

i) Which substance may be used as a preservative? **1M**

ii) Which substance may be used in antacids? **1M**

iii) Which substance may be used in cakes to make them fluffy? and write equation involved. **2M**

(OR)

Which substance is a strong acid? and explain why ? **2M**

29. Explain the following.

A. Reactivity of A*l* decreases if it is dipped in HNO_3 **1M**

B. Carbon cannot reduce the oxides of Na or Mg **1M**

C. NaC*l* is not a conductor of electricity in solid state whereas it does conduct electricity in aque ous solution as well as in molten state **1M**

D. Iron articles are galvanised. **1M**

E. Metals like Na, K, Ca and Mg are never found in their free state in nature. **1M**

(OR)

i) What is saponification ? Differentiate between soaps and detergents on the basis of the following

1) Their chemical composition

2) Their mechanism in hard water

ii) Explain the formation of micelles between oily dirt and soap molecules. Also draw its diagram.

SECTION - C (PHYSICS)

30. Three resistors, each of 2 ohm, are connected together in a triangular shape. The resistance between any two vertices will be **1M**

A. 4/3 ohm B. 3/4 ohm C. 3 ohm D. 6 ohm.

31. A concave lens of focal length 20 cm produces an image half in the size of the real object. The distance of the real object is **1M**

A. 20 cm B. 30 cm C. 10 cm D. 60 cm

32. **Assertion (A) :** Far-sightedness is corrected by a convex lens. **1M**
Reason (R) : A convex lens converges in nature.

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.

33. In a house, 2 bulbs of 50 W each are used for 6 hours daily and an electric geyser of 1 kW is used for 1 hour daily. Calculate the total energy consumed in a month of 30 days? **2M**

34. Define the following terms in the case of spherical mirrors ? **2M**

i) Aperture ii) Principal focus

(OR)

The image of an object formed by a lens is of the same size but inverted. If the object distance is 30 cm, what is the nature of the lens and draw the ray diagram for the above case. **2M**

35. Why does the sun seem to rise two minutes before the actual sunrise and set two minutes after the actual sunset ? Explain with the help of a labelled diagram.

3M

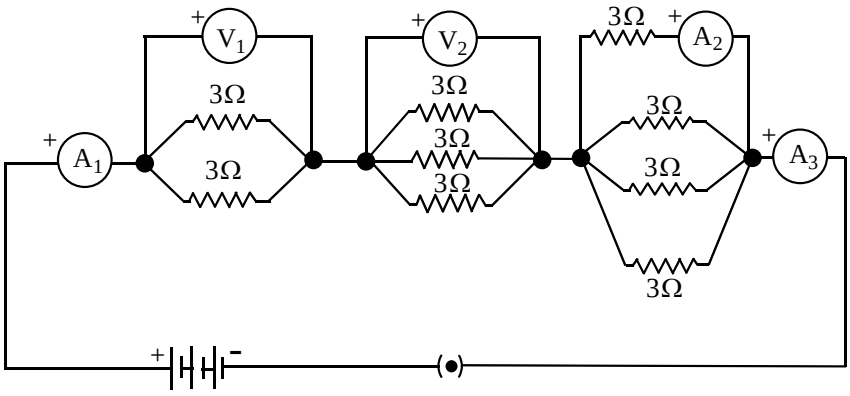
36. A. Define 1 ohm resistance **1 M**

B. How many 176Ω resistors (in parallel) are required to carry 5 A on a 220 V lines ? **2 M**

37. Describe an activity with the help of a diagram to draw magnetic field lines for a current carrying straight conductor. **3 M**

1 × 4 = 4 M

38. Consider the following electrical circuit diagram in which nine identical resistors of 3Ω each are connected as shown. If the reading of the ammeter A_1 is 1 ampere, answer the following questions :



A. What is the relationship between the readings of A_1 and A_3 ? Give reasons for your answer. **1 M**

B. What is the relationship between the readings of A_2 and A_3 ? **1 M**

C. Determine the reading of the voltmeter V_1 **2 M**

(OR)

D. Determine the reading of V_2

39. i) A watchmaker uses a small magnifying glass to see tiny parts. Where should he keep the object (parts of the watch), to see a clear image ? Draw the ray diagram for the above-mentioned case.

ii) An object of size 3 cm is placed in front of a thin spherical lens of power 4D. The image is formed at a distance of 40 cm from the lens. Name the type of spherical lens. Also, calculate the position of the object and the size the of image. **5M**

(OR)

A student wants to project the image of a candle flame on a screen 60 cm in front of a mirror by keeping the candle at a distance of 15 cm from its pole.

a) Name the type of mirror used. **1M**

b) Also calculate : **2M**

i) Magnification of the image produced

ii) Distance between the object and its image

c) Draw a ray diagram to show the image formation **2M**