



ITL PUBLIC SCHOOL
PERIODIC TEST 2 (2025-26)

Class: X

Date: 18.09.25

SCIENCE (086) SET A

M.M: 80

Time: 3 hrs.

Gagandeep Rohilla X-c (11)

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

- 1 Taking in whole material and breaking it down inside the body is 1
(a) Parasitic nutrition (b) Holozoic nutrition (c) Saprophytic nutrition (d) Symbiotic nutrition
- 2 Which of the following is responsible for the sense of "SMELL" in the body: 1
(a) auditory receptors (b) olfactory receptors (c) visual receptors (d) thigmoreceptors
- 3 It is advised 'DON'T DRINK AND DRIVE' as alcohol affects a part 'A' of brain responsible 1
for controlling posture and balance of the body. Identify the part -
a) Pons b) Medulla oblongata c) Cerebellum d) Cerebrum
- 4 Which option correctly shows the transport of oxygen to the cell? 1
a) Lungs → pulmonary vein → left atrium → left ventricle → aorta → body cells
b) Lungs → pulmonary vein → right atrium → right ventricle → aorta → body cells
c) Lungs → pulmonary artery → left atrium → left ventricle → vena cava → body cells
d) Lungs → pulmonary artery → right atrium → right ventricle → vena cava → body cells
- 5 Water and minerals in plants are transported by- 1
(a) Xylem parenchyma (b) Xylem vessels (c) Phloem parenchyma (d) Sieve tubes of phloem
- 6 Study the table below and select the row that has correct information- 1

BODY FLUID	CONTENTS
A. Blood	plasma + RBC + WBC + platelets
B. Plasma	Blood - (RBC + WBC)
C. Lymph	Plasma + RBC + Lymphocytes
D. Serum	Plasma + RBC + WBC

- 7 Which gland is **NOT** associated with digestion of food? 1
(a) Liver (b) Thyroid gland (c) salivary gland (d) Pancreas
The following two questions consist of two statements – Assertion (A) and Reason (R).
Answer these questions by 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 but R is true.
- 8 Assertion(A): Pancreas is regarded as a heterocrine gland 1
Reason (A): Insulin and glucagon are the two hormones secreted by pancreas.
- 9 Assertion(A): The accumulation of lactic acid in the muscles causes muscle cramps. 1
Reason(R): During vigorous physical exercise leg muscles respire anaerobically.
- 10 How is the spinal cord protected in human body? Discuss two ways 2
- 11 Justify the following: 2
a) Arteries have thick elastic walls.

b) Veins possess valves while arteries do not.

OR

Name the connection formed at the junction of two neurons. Explain how the transfer of impulse takes place here.

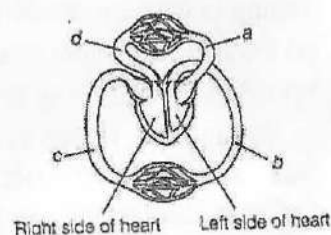
12. State two differences between the nervous control and hormonal mechanism for control and coordination in humans. 2

13. (a) "Adrenaline is regarded as Flight or Fight hormone". Justify the statement giving suitable example. 3

(b) Differentiate between the process of aerobic and anaerobic respiration in human beings on the basis of- Amount of energy released . End products formed

14. Observe the given diagram and answer the following-

- (a) Identify parts a,b,c,d
 (b) Name the process depicted here,
 (c) How is the left and right side of the heart separated in human beings?



15. Read the following paragraph and answer the questions based upon related concepts- 4
The kidneys eliminate the body's metabolic wastes. However, the kidneys may fail eventually due to some underlying illness or senility. In these cases, dialysis means the difference between life and death. Dialysis functions on the filtration of fluid through a semipermeable membrane and concept of the dissipation of solutes. Diffusion is a characteristic of materials in water that has the tendency to flow against a concentration gradient.

- a). What are the two main steps of filtration of blood in human kidneys?
 b) How is the process of dialysis different than that of human kidneys ?
 c) Ravi's brother is suffering from chronic kidney disease. He has to undergo dialysis every week. Doctors have suggested a kidney transplant to him. Who could be the preferred donor -his grandmother or Ravi. Give reason.

OR

Name any 2 other excretory organs in human beings apart from kidneys and their excretory products.

16. (a) How is the movement of sensitive plant (Touch me not) different from the movement of shoot towards light? (give 2 points) 5
 (b) Draw a neat diagram of Reflex Action and label the parts-sensory neuron ,motor neuron and spinal cord

OR

- (a) Name the types of tropic movement shown in the given fig A and B



Fig A

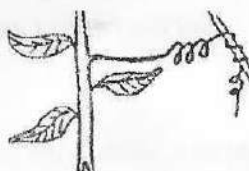
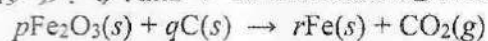


Fig B

- (b) Draw a neat diagram of a neuron and label the part- Cyton , Axon and dendrites

SECTION B

17. Identify 'p', 'q', and 'r' in the following balanced reaction: 1

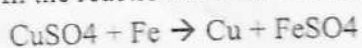


- (a) 1,3,2 b) 2, 3, 4 c) 1, 1, 2 d) 3,1,1

18. Which of the following statements is true for an amphoteric oxide?
- It reacts only with acid and does not form water.
 - It reacts with acid as well as base to form salt and hydrogen gas.
 - It reacts with both acid as well as base to form salt and water.
 - It reacts only with base and does not form water.

19. Three beakers labelled as A, B and C each containing 25 mL of water were taken. A small amount of NaOH, anhydrous CuSO_4 and NaCl were added to the beakers A, B and C respectively. It was observed that there was an increase in the temperature of the solutions contained in beakers A and B, whereas in case of beaker C, the temperature of the solution falls. Which one of the following statement (s) is (are) correct?
- In beakers A and B, exothermic process has occurred.
 - In beakers A and B, endothermic process has occurred.
 - In beaker C, exothermic process has occurred.
 - In beaker C, endothermic process has occurred.
- a) Only (i) b) Only (ii) c) (i) and (iv) d) (ii) and (iii)

20. In the reaction of iron with copper sulphate solution:



Which option in the following table correctly represents the substance oxidized and the reducing agent?

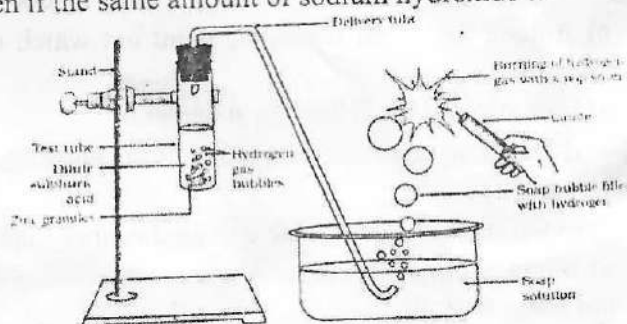
Option	Substance oxidised	Reducing agent
(a)	Fe	Fe
(b)	Fe	FeSO_4
(c)	Cu	Fe
(d)	CuSO_4	Fe

21. Study the following table and choose the option that correctly represents the parent acid and parent base of potassium sulphate?

Option	Parent acid	Parent base
a)	HNO_3	KOH
b)	H_2SO_4	KOH
c)	HCl	KOH
d)	H_2SO_4	NaOH

22. In the following diagram, what would happen if the same amount of sodium hydroxide is taken in place of sulphuric acid and the test tube is heated?

- Same amount of H_2 gas is evolved
- H_2 gas is not evolved
- The amount of H_2 gas evolved is much less
- In place of H_2 gas, O_2 gas evolved



23. A solution reacts with crushed egg-shells to give a gas that turns lime water milky. The solution contains:
- NaCl
 - HCl
 - LiCl
 - KCl

The following question consist of two statements – Assertion (A) and Reason (R). Answer these questions by selecting the appropriate option given below:

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

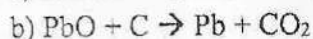
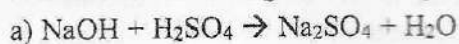
C. A is true but R is false.

D. A is false but R is true.

24. **Assertion (A):** The important products from chlor-alkali process are hydrogen, chlorine and sodium hydroxide. 1

Reason (R): Baking powder is a mixture of baking soda and citric acid.

25. Balance the following chemical equations: 2



26. During electrolysis of brine, a gas G is liberated at anode. When this G is passed through slaked lime, a compound C is formed Which is used for disinfecting drinking water. 3

a) Write the formula of G and C.

b) State the chemical equation involved.

c) What is the common name of compound C? Give its chemical name.

OR

a) Define olfactory indicators.

b) Name two substances which can be used as olfactory indicators.

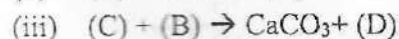
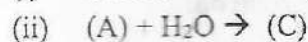
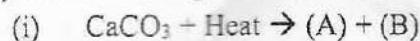
c) Choose strong acids from the following: CH_3COOH , H_2SO_4 , H_2CO_3 , HNO_3

27. a) Identify the substances that are oxidised and the substances that are reduced in the following reactions: 3



b) What happens when silver chloride is kept in sunlight for some time?

28. Study the reactions given below and answer the following questions: 4



a) Derive the names of A, B, C and D. Write the equations represented by (i) and state its type.

Attempt either subpart (B) or (C):

b) What happens when chlorine gas is passed through (C)?

OR

c) Among the given reactions, point out which is combination reaction? Write its balanced equation.

29. a) Comment on the following statements: 5

i) Bee sting is treated with baking soda paste whereas wasp sting is treated with dilute vinegar.

ii) On strong heating, blue coloured copper sulphate crystals turn white.

b) While diluting an acid, why it is recommended that the acid should be added to water and not water to acid?

c) Five solutions A, B, C, D and E when tested with universal indicator showed pH as 5, 1, 12, 7 and 9 respectively. Which solution is:

i) neutral? ii) strongly alkaline? iii) weakly alkaline? iv) strongly acidic?

OR

a) What is water of crystallization?

b) Write the common name and chemical formula of a commercially important compound which has ten water molecules as water of crystallization. How is this compound obtained? Write the chemical equation also.

c) List any two uses of the compound mentioned in (b) part.

SECTION C

- 30 A current through a horizontal power line flows in east to west direction. The direction of magnetic field at a point directly below it is from
 a) North to South b) South to North c) West to East d) North to West
- 31 Appliances that have metal body are generally connected to the earthing wire. What is the reason to earth these wires?
 a) to prevent excess of current b) to prevent the leakage of current
 c) to provide extra current to appliance d) to provide high resistance to the Appliance.

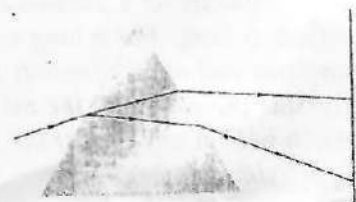
The following question consist of two statements – Assertion (A) and Reason (R). Answer these questions by selecting the appropriate option given below:

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 D. A is false but R is true.

- 32 Assertion (A): Blue colour of sky appears due to scattering of blue colour.
 Reason (R): Blue colour has the longest wavelength.

- 33 A beam of light falling on a glass prism gets split up into seven colours marked 1 to 7 as shown in the diagram.

- a) Which number represents the colour having minimum speed in glass prism?
 b) Which number represents the colour close to stop signal lights?
 c) Which number represents the colour of sunflower?
 d) Which colour is at no.5?



- 34 Refractive index of water with respect to air is 1.33 and that of diamond is 2.42.
 a) In which medium does the light move slower, water or diamond?
 b) What is the refractive index of water with respect to diamond?

OR

State Snell's law. If angle of incidence is 30° and angle of refraction is 45° for a ray of light while entering from medium 1 to medium 2. Calculate the refractive index of medium 1 w.r.t. medium 2.

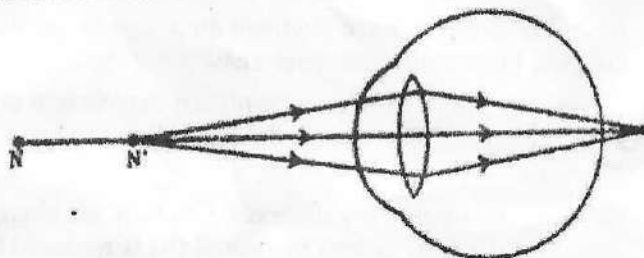
- 35 An object is placed at a distance of 30 cm from the optical centre of a convex lens of focal length 15 cm. Use lens formula to determine the distance of the image from the optical centre of the lens. Draw a ray diagram to show the above mentioned case.

- 36 Study the diagram given below and answer the questions that follow:

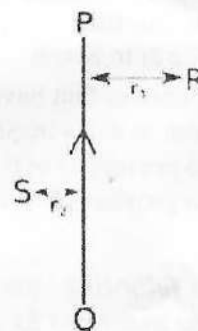
- a) Name the defect of vision represented in the diagram. Give reason.

- b) List two causes of this defect.

- c) With the help of diagram show how this defect of vision is corrected?



- 37 PQ is a current carrying conductor in the plane of the paper as shown in the figure below.



3

(i) Find the directions of the magnetic fields produced by it at points R and S?

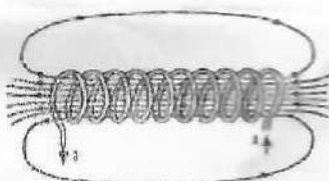
(ii) If the polarity of the battery connected to the wire is reversed, how would the direction of the magnetic field be changed?

(iii) State the rule that is used to find the direction of the magnetic field for a straight current carrying conductor.

- 38 As shown in the figure a solenoid where the wire is coiled around a cylinder, each wire loop in this coil acts as if it was a separate circular wire carrying the same current I , the current in the coiled wire and dense enough array of such loops may be approximated by a cylindrical current sheet with the current density.

4

For simplicity let's assume a long solenoid (length \gg diameter) which we approximate as infinitely long. For a long solenoid, the magnetic field inside a solenoid is approximately uniform and approximately parallel to the axis, except near the ends of the solenoid. Outside the solenoid, the magnetic field looks like the field of a physical dipole, with the north pole at one end of the solenoid and the South pole at the other end and is approximately negligible.



1. Name the type of magnet with which the magnetic field pattern of a current carrying solenoid resembles.
2. On what factors does the magnetic field produced by a current carrying solenoid depends?
3. Magnetic field produced in a region is uniform. Draw magnetic field lines to represent such region.
4. If magnetic field lines intersect each other at a point, what will this indicate? Is it possible under any circumstance?

- 39 (i) Rohit claims to have obtained an image twice the size of object with a concave lens. Is he correct? Give reason for your answer.

5

(ii) Where should an object be placed in case of a convex lens to form an image of same size as of the object? Show with the help of ray diagram the position and the nature of the image formed.

(ii) With the help of ray diagram, illustrate the change in position, nature and size of the image formed if the convex lens in case of (ii) is replaced by concave lens of same focal length.

OR

(i) Define Power of lens. What is its S.I. unit?

(ii) Calculate the focal length and power of the combination of a convex lens of power $+4\text{ D}$ and a concave lens of power -2 D ?

(iii) How is a virtual image formed by a convex lens different from that formed by a concave lens? Under what conditions do a convex and a concave lens form virtual images?