BUDHA DAL PUBLIC SCHOOL PATIALA

First Term Examination (15September 2025)

CLASS - X

PAPER- SCIENCE (SET-A)

Time:3 hr. M.M. 80

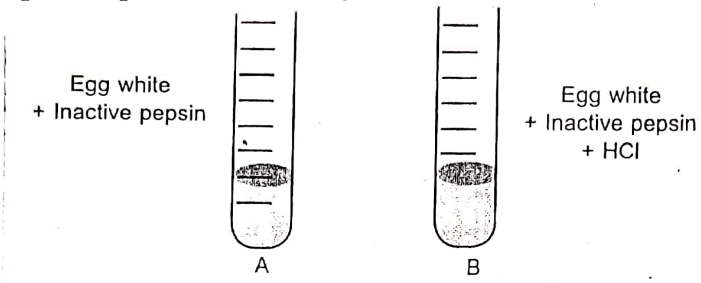
General Instructions:

(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

Q1. A student sets up an experiment to study the role of enzymes in digestion of food. (1)



In which test tube, the digestion of protein will occur?

a) Test tube A as pepsin will break down protein into simple molecules.
b) Test tube B as HCl will break down protein into simple molecules.
c) Test tube A as pepsin will break down into simple molecules.
d) Test tube B as HCl will activate pepsin for breakdown of protein into simple molecules.

Q2. Which is the correct sequence of air passage during inhalation? (1)

a) Nostrils → larynx → pharynx → trachea → lungs
b) Nasal passage → trachea → pharynx → larynx → alveoli
c) Larynx → nostrils → pharynx → lungs
d) Nostrils → pharynx → larynx → trachea → alveoli

Q3. What prevents backflow of blood inside the heat during contraction? (1)

a) Valves in heart
b) Thick muscular walls of ventricles
c) Thin walls if atria
d) All of the above

Q4. The main function of the ureters is to (1)

a) Control the pressure or urine in urinary bladder
b) Take urine from kidneys to urinary bladder
c) Filter blood and remove it to urine
d) Connect the parts of excretory system

Q5. The secretion of which hormone leads to physical changes in the body when you are 10-12 years of age? (1)

a) Estrogen from testes and testosterone from ovary
b) Estrogen from adrenal gland and testosterone from pituitary gland
c) Testosterone from testes and estrogen from ovary
d) Testosterone from thyroid gland and estrogen from pituitary gland

Q6. In a synapse, chemical signal is transmitted from (1)
a) dendritic end of one neuron to axonal end of another neuron
b) axon to cell body of the same neuron
c) cell body to axonal end of the same neuron
d) axonal end of one neuron to dendritic end of another neuron

Q7. Lack of oxygen in muscles often leads to cramps among cricketers. This results due to (1)
a) conversion of pyruvate to ethanol b) conversion of pyruvate to glucose
c) non conversion of glucose to pyruvate d) conversion of pyruvate to lactic acid

For the following questions, two statements are given – one labeled Assertion (A) and the other labeled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

a) Both A and R are true and R is the correct explanation of the assertion.
b) Both A and R are true but Reason R is not a correct explanation of Assertion.
c) A is true but R is false.
d) A is false but R is true.

Q8. **Assertion** :We detect the smell of agarbatti. (1)

Reason :Smell is detected by phonoreceptors of nose which further relay impulses to the brain.

Q9. **Assertion :** Plants can survive without separate respiratory organs. (1)
Reason: Each plant part takes care of its own gas exchange needs.

Q10. Veins are thin walled and have valves. Justify. (2)

Q11. What is the difference between the manner in which movement takes place in a sensitive plant and the movement in our legs? (2)

Q12. Bile juice does not have any digestive enzyme but still plays a significant role in the process of digestion. Justify the statement. (2)

Q13. Explain the three pathways of breakdown of sugars in living organisms. (3)

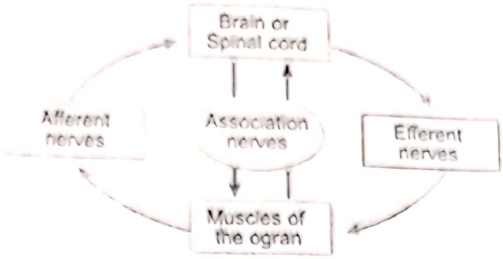
Q14. Which hormone is released into the blood when its sugar level rises? Name the organ which produces the hormone and describe its effect on blood sugar level. Also name one digestive enzyme that this organ secretes and the function of this enzyme. (3)

Read the paragraph and answer the following questions: (4)

To carry out a simple function such as eating food there has to be coordination of the eyes, hands and the mouth. The eyes have to focus on the food, the hands have to pick it up and take it to the mouth where it will be chewed. All these actions have to be coordinated in such a manner that they follow a particular sequence and the action is completed. A similar mechanism is also needed for internal functions of the body. This function is carried out by the nervous system. It is composed of

1) Specialised cells which can detect, receive and transmit different kinds of stimuli. These are called neurons.
2) Nerve fibres which are certain bundles of extended processes of nerve cells.

The individuals also have to adjust to the changing conditions around them and vary their responses. At the same time, the internal conditions of the body should be maintained constant. This is called homeostasis. The internal conditions of the body are maintained at a constant by controlling the physiology of the organisms.

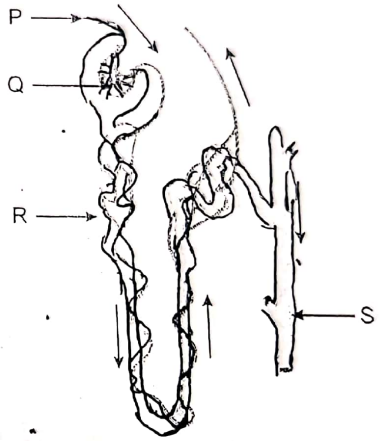


a) What will be the correct sequence in which conduction of information through nerves take place?
b) How homeostasis is said to maintain the equilibrium of the body?
c) What function does the central nervous system perform?
d) What happens when the dendrite tip of a nerve cell receives a signal?

Q16. a) Define excretion. (5)
b) Name the basic filtration unit present in the kidney
c) Draw excretory system in human beings and label the following organs of excretory system which perform following functions:
(i) form urine
(ii) a pair of long tubes which collects urine from kidney
(iii) store urine until it is passed out

OR

Given below is a diagram of a nephron.



a) Name the parts P, Q, R and S
b) Write functions of Q and S.
c) What do you mean by artificial kidney?

Section – B
Chemistry

Q17. Identify p, q *and* r in the following balanced reaction (1)

$$p\ Pb\ (NO_3)_2 \xrightarrow{Heat} qPbO(s) + rNO_2(g) + O_2(g)$$

a) 2, 2, 4 b) 2, 4, 2 c) 2, 4, 4 d) 4, 2, 2

Q18. Common salt besides being used in kitchen can also be used as the raw material for making (1)

i) Washing soda ii) Bleaching powder iii) Baking soda iv) Slaked lime

Options:

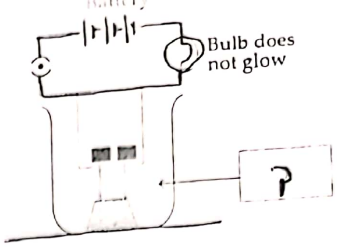
a) (i) & (ii) b) (i), (ii) & (iv) c) (i) & (iii) d) (i), (ii) & (iv)

Q19. Identify the product 'X' obtained in the following chemical reaction (1

$$CaCO_3 \xrightarrow{D'} X' + CO_2$$

a) Quick time b) Limestone c) Gypsum d) None of the above

Q20. The solution in the given figure in likely to be



a) HNO_3 b) C_2H_5OH

c) H_2SO_4 d) CO_2 in water

(1)

Q21. What do we observe on pouring acetic acid on Red and Blue litmus paper?

a) Red litmus remains red and blue litmus turns red
b) Red litmus turns blue and blue remain blue
c) Red litmus turns blue, blue litmus red
d) Red litmus becomes colourless and blue litmus remain blue

(1)

Q22. In Electrolysis of water

a) H_2 is liberated at anode and O_2 is liberated at cathode
b) O_2 is liberated anode and H_2 is liberated at cathode
c) Both are liberated simultaneously at anode
d) None of above happen

Q23. On adding some copper turnings to silver nitrate solution what will you observe? (1)

a) The solution turned blue
b) Yellow precipitate was formed
c) White precipitate was formed
d) The solution turned red

Q24. **For the following questions, two statements are given - one labeled Assertion (A) and the other labeled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:** (1)

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Assertion : Higher the pH value stronger is the alkaline solution.
Reason: pH of a solution changes with dilution.

Q25. Why P.O.P. should be stored in moisture free container? (2)

Q26. Iron nail is kept in copper sulphate solution for some time (3)

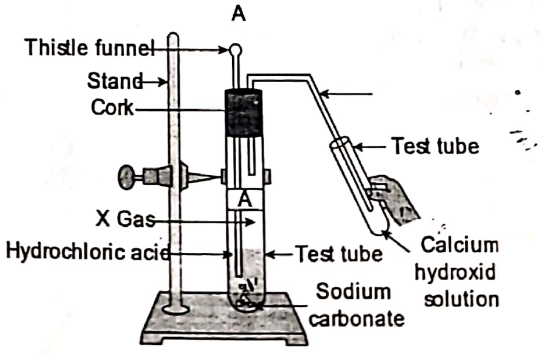
a) Write two observations
b) Mention the type of reaction and explain by using balanced chemical equation.

Q27. A milkman adds a very small amount of baking soda to fresh milk (3)

a) Why does he shift the pH of fresh milk from 6 to slightly alkaline?
b) Why does this milk take a long time to set as curd?

Q28. **Read the following and answer the questions:** (4)

Look at the figure and answer the following questions:



A-4

(7)

1. Identify the gas X evolved in the above reaction
   a) Oxygen b) Hydrogen c) Chlorine d) Carbon dioxide
2. What change do you observe when X is passed through the solution in the test tube B?
   a) Solution becomes hot b) Solution becomes cold
   c) Solution becomes milky d) No change in the solution observed
3. Write balanced chemical equation when gas X reacts with $Ca(OH)_2$ solution.
   Is X a supporter of combustion?

OR

What will be the pH of $CaCO_3$. Name base and acid required to make this salt.

Q29. **i) Write Balanced Chemical Equation for following reactions:** (5)
   a) Hydrogen sulphide gas burns in air to give water and sulphur dioxide
   b) Barium Chloride + Potassium sulphate ⟶ Bariumsulphate + Potassiumchloride

ii) What is Brine? How Brine solution decomposes on passing electricity? Write equation to explain the formation of products.

OR

a) Define Redox Reaction. Name the substance getting oxidized and reduced in given equation.

$$2PbO_{(s)} + C_{(s)} \rightarrow 2Pb_{(s)} + CO_2(g)$$

b) A substance 'P' is used as bleaching agent in the textile industry. Name the raw material required and equation for its preparation. Also mention the common name and chemical name of P.

Section – C
Physics

Q30. Which of the following mirrors always forms a virtual and erect image? (1)
   a) Concave mirror b) Convex mirror c) Plane mirror d) both (b) and (c)

Q31. In absence of atmosphere, the color of sky appears (1)
   a) Blue b) Black c) Red d) Yellow

Q32. **Assertion :** Danger signals are made of red colour. (1)

Reason : Velocity of red light in air is maximum, so signals are visible even in dark.

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Q33. State laws of reflection? (2)

Q34. Draw well labeled ray diagram for (2)
   a) Rear view mirror b) Doctors mirror

Q35. A 5 cm tall object is placed perpendicular to the principal axis of a convex lens of focal-length 20 cm. The distance of the object from the lens is 30 cm. Find the: (3)
(i) position (ii) nature (iii) size of the image formed.

Q36. A 4 cm tall object is placed perpendicular to the principal axis of a convex lens of focal-length 15 cm. The distance of the object from the lens is 30 cm. Find the: (3)
(i) position (ii) nature (iii) size of the image formed.

A-5