BUDHA DAL PUBLIC SCHOOL PATIALA

First Term Examination (15 September 2025)

CLASS - X

PAPER- SCIENCE (SET-B)

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. The correct sequence of anaerobic reactions in yeast is (1)

a) $Glucose \xrightarrow{Cytoplasm} Pyruvate \xrightarrow{Mitrochondria} Ethanol + Carbon\ dioxide$

b) $Glucose \xrightarrow{Cytoplasm} Pyruvate \xrightarrow{Cytoplasm} Lactic\ acid$

c) $Glucose \xrightarrow{Cytoplasm} Pyruvate \xrightarrow{Mitrochondria} Lactic\ acid$

d) $Glucose \xrightarrow{Cytoplasm} Pyruvate \xrightarrow{Cytoplasm} Ethanol + Carbon\ dioxide$

Q2. The blood cells responsible for clotting of blood are (1)

a) Erythrocytes b) blood platelets c) white blood corpuscles d) red blood cells

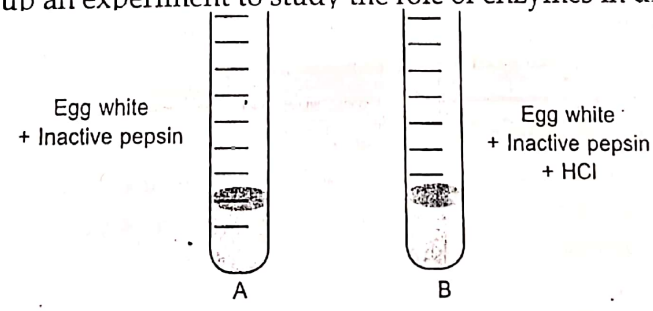
Q3. Which organ acts like a natural dialysis chamber in the human body? (1)

a) Brain b) Heart c) Pancreas d) Kidneys

Q4. Identify which of the following statements about thyroxine is incorrect? (1)

a) Thyroid gland release the hormone thyroxine
b) Thyroxine is also called thyroid hormone
c) It regulates protein, carbohydrates and fat metabolism in the body
d) Iron is essential for the synthesis of thyroxine

Q5. 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.

Q6. Which of the following statements about transmission of nerve impulse is incorrect? (1)

a) Nerve impulse travels from dendritic end towards axonal end

B-1

b) At the dendritic end electrical impulses bring about the release of some chemicals which generate an electrical impulse at the axonal end of another neuron.
c) The chemicals released from the axonal end of one neuron cross the synapse and generate a similar electrical impulse in a dendrite or another neuron.
d) A neuron transmits electrical impulses not only to another neuron but also to muscle and gland cells.

Q7. In which of the following groups of organisms, food material is broken down outside the body and absorbed? (1)

a) Mushroom, green plants, Amoeba
b) Yeast, mushroom, bread mould
c) Paramecium, Amoeba, Cuscuta
d) Cuscuta, lice, tapeworm

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 :** Stem bends towards the direction of light. (1)

Reason : The stem grows faster in the shade side.

Q9. **Assertion :** The walls of the ventricles are thicker than the walls of the auricles. (1)
Reason: The ventricles have to pump blood to veins only.

Q10. Give reasons: (2)
a) What happens to a plant if its xylem is removed?
b) Veins have valves whereas arteries do not

Q11. How are involuntary actions and reflex actions different from each other? (2)

Q12. What is double circulation? Why is it important in birds and mammals? (2)

Q13. a) How does our body respond when adrenaline is secreted into the blood? (3)
b) How do we detect the smell of an agarbatti (incense stick)?

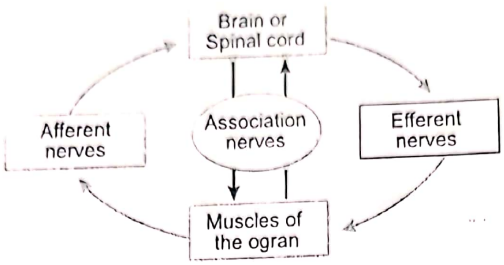
Q14. a) If you compare your rate of breathing by feeling your chest movement with the number of times a fish opens and closes its mouth, which will be higher and why? (3)
b) Write two different ways in which glucose break down to provide energy in human body. Write the products formed in each case.

Q15. **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.



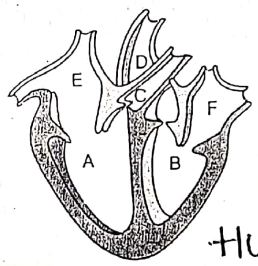
a) What will the correct sequence in which conduction of information through nerves take place?
b) How homeostasis is said to maintain the equilibrium of the body?
c) What function does the central nervous system perform?
d) What happens when the dendrite tip of a nerve cell receives a signal?

Q16. (5)

a) Define excretion.
b) Name the basic filtration unit present in the kidney
c) Draw labelled diagrams to show nutrition in Amoeba and explain the type of nutrition in it.

OR

a) Name the parts A, B, C, D, E and F
b) Write functions of A and D.



Human Heart.

Section - B

Chemistry

17. A chemical compound used in glass, soap as laboratory reagent and in paper industries is (1)

a) washing soda b) baking soda c) bleaching powder d) common salt

8. Select a pair of natural indicator from the following: (1)

a) Litmus and methyl orange
b) Turmeric and litmus
c) Phenolphthalein and methyl orange
d) Methyl orange and turmeric

. Which of the following are exothermic processes? (1)

i) Reaction of water with quick lime
ii) Dilution of an acid
iii) Evaporation of water
iv) Sublimation of camphor (crystals)

a)(i) and (ii) b)(i) and (iv) c) (ii) and (iii) d) (iii) and (iv)

B-3

Q20. A girl met with an accident and got her leg fractured. She went to an orthopedics for treatment. The doctor mixed a white powder in water and applied it to her leg. What could be white powder? (1)

a) Talcum powder b) Plaster of paris c) Gypsum d) Copper Sulph ate

Q21. A student prepared 20% solution of NaOH in a beaker containing water. The observation noted by him are given (1)

1) Sodium hydroxide is in the form of pellets
2) It dissolves in water readily
3) The beaker appears cold when touches from outside
4) The red litmus paper turns blue when dipped into the solution

The correct observation are:

a) 1, 2 and 3 b) 2, 3 and 4 c) 3, 4 and 1 d) 1, 2 and 4

Q22. In thermal decomposition of head Nitrate the following reaction take place (1)

$2FeSO_4 \longrightarrow Fe_2O_3 + —(g) + —(g)$

Name the above gases

a) O_2 and NO_2 b) O_2 and SO_2 c) SO_2 and SO_3 d) None of above

Q23. Which of the following reactions is used in Black and white photography?

a) Combustion reaction
b) Decomposition reaction
c) Displacement reaction
d) Oxidation reaction

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)

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.

Assertion : Rubbing with soap on the affected area of a bee sting relieves pain.
Reason: Soap neutralizes the acid contained in the bee sting.

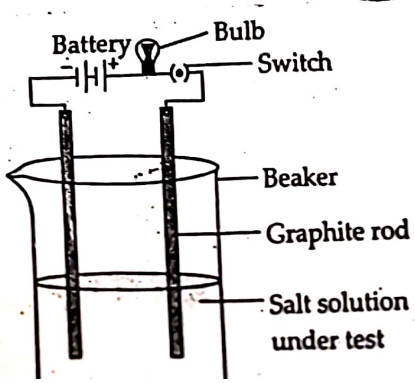
Q25. Why curd and sour substances should not be kept in Brass container? (2)

Q26. What happens when a piece of Zn – Metal is added to copper Sulphate solution. Complete equation and Mention the type of reaction taking place. (3)

Q27. a) Define water of crystallization. (3)
b) Name and give the formula of a salt which contain water of crystallization.

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

A student decided to observe the conductive nature of ionic compounds in different physical state. He took two sample of compounds. In first case solid common salt was taken to make a circuit in which bulb not glows. Secondly he dissolve the same salt in water and complete the circuit as given in figure. In this case bulb glows:



B-4

a) What conclusion can you draw from this activity?
b) Why does salt conduct electricity in aqueous solution but not in solid state?
c) What happens when electricity is passed through NaCl. solution ?

OR

c) If we take the sugar solution in water and test the conductivity, will the bulb glow?

Q29. **i) Write Balanced Chemical Equation for following reactions:** (5)
a) Hydrogen + Chlorine → Hydrogen Chloride
b) Barium Chloride reacts with sodium sulphate in water to form insoluble Barium sulphate and solution of sodium chloride

ii) Substance Q is used in making tasty crispy pakoras
a) Identify the compound Q
b) What reaction takes place when it is heated during cooking
c) Is the pH value of given solution of Q higher or lower than 7

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. The focal length of a plane mirror is: (1)
a) Zero b) Infinite c) Negative d) One

Q31. The phenomenon responsible for the red color of the sun at sunrise and sunset is: (1)
a) Reflection b) Refraction c) Dispersion d) Scattering of light

Q32. **For the following question, 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)

Assertion : Blue colour of sky appears due to scattering of blue colour.

Reason : Blue light has longer wavelength.

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.**

Q33. State laws of refraction. (2)

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

Q35. A student is unable to see clearly the words written on the black board placed at a distance of approximately 3 m from him. Name the defect of vision the boy is suffering from. State the possible causes of this defect and explain the method of correcting it. (3)

Q36. A person cannot read newspaper placed nearer than 50 cm from his eyes. Name the defect of vision he is suffering from. Draw a ray diagram to illustrate this defect. List its two possible causes. Draw a ray diagram to show how this defect may be corrected using a lens of appropriate focal length. (3)

B-5

Q37. What do you mean by Dispersion of light? Show by a ray diagram how light disperses into different colors? (3)

Q38. **Read the paragraph and answer the following questions:** (4)

The spherical mirror forms different types of images when the object is placed at different locations. When the image is formed on screen, the image is real and when the image does not form on screen, the image is virtual. When the two reflected rays meet actually, the image is real and when they appear to meet, the image is virtual.

A concave mirror always forms a real and inverted image for different positions of the object. But if the object is placed between the focus and pole. The image formed is virtual and erect.

A convex mirror always forms a virtual, erect and diminished image. A concave mirror is used as doctor's head mirror to focus light on body parts like eyes, ears, nose etc., to be examined because it can form erect and magnified image of the object. The convex mirror is used as a rear view mirrors in automobiles because it can form an small and erect image of an object.

(i) When an object is placed at the centre of curvature of a concave mirror, the image formed is

(a) larger than the object (b) smaller than the object

(c) same size as that of the object (d) highly enlarged

(ii) No matter how far you stand from a mirror, your image appears erect. The mirror is likely to be

(a) plane(b) concave (c) convex (d) either plane or convex

(iii) A child is standing in front of a magic mirror. She finds the image of her head bigger, the middle portion of her body of the same size and that of the legs smaller. The following is the order of combinations for the magic mirror from the top.

(a) Plane, convex and concave (b) Convex, concave and plane

(c) Concave, plane and convex (d) Convex, plane and concave

(iv) To get an image larger than the object, one can use

(a) convex mirror but not a concave mirror(b) a concave mirror but not a convex mirror

(c) either a convex mirror or a concave mirror (d) a plane mirror

Q39. a) A person needs a lens of power +3 D for correcting his near vision and -3 D for correcting his distant vision. Calculate the focal lengths of the lenses required to correct these defects. What will be total power if both the lenses are placed together? (5)

b) How will you use two identical glass prisms so that a narrow beam of white light incident on one prism emerges out of the second prism as white light? Draw and label the ray diagram.

OR

Define the following terms in case of a concave mirror:

a) Pole b) Radius of curvature c) Principal axis d) Principal focus

Suppose you want to observe an erect image of a candle flame using a concave mirror of focal length 20 cm. State the range of distance of the candle flame from the mirror.