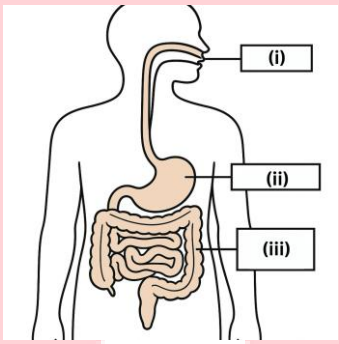
SCIENCE
SAMPLE QUESTION PAPER-1
CLASS – X (2025-26)

Max. Marks: 80 **Time Allowed: 3 hours**

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.1 Identify the option that indicates the correct enzyme secreted in locations A, B, and C.



A. (i)-lipase, (ii)-trypsin, (iii)-pepsin **(1-Mark)**
B. (i)-amylase, (ii)-pepsin, (iii)-trypsin
C. (i)-trypsin, (ii)-amylase, (iii)-carboxylase
D. (i)-permease, (ii)-carboxylase, (iii)-oxidase

Q.2 Opening and closing of stomatal pore depends on: **(1-Mark)**
A. Atmospheric temperature
B. Oxygen concentration around stomata
C. Carbon dioxide concentration around stomata
D. Water content in the guard cells

Q.3 Which adaptation in herbivores helps in digestion of cellulose? **(1-Mark)**
A. Longer large intestine
B. Smaller large intestine
C. Smaller small intestine
D. Longer small intestine

Q.4 Rajesh noticed a potted plant in his room bending toward sunlight. This could be due to:
A. More growth in the well-lit region due to diffusion of auxin hormone **(1-Mark)**
B. More growth in the region away from light due to diffusion of auxin hormone
C. More growth in the well-lit region due to diffusion of cytokinin hormone
D. More growth in the region away from light due to diffusion of cytokinin hormone

Q.5 Person X suffers from a condition affecting the normal functioning of the pituitary gland. Which is most likely a direct effect? **(1-Mark)**
A. Insufficiency of iodine
B. Irregular heartbeat
C. Insufficient growth of the body
D. Inability to regulate blood sugar

Q.6 The time duration from the sowing of seeds to the harvest of crops is critical for agricultural purposes.
Based on the information above, select a reason why farmers prefer vegetative propagation for growing crops. **(1-Mark)**

A. Seedless crops can also be reproduced.
B. Offspring plants are genetically similar to parent plants.
C. Plants grown by vegetative propagation bear fruits earlier.
D. Vegetative propagation does not depend on external agents of pollination.

Q.7

Which type of tropism is observed in the diagram? **(1-Mark)**
A. Geotropism
B. Phototropism
C. Hydrotropism
D. Chemotropism

The following question consists 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

Q.8 Assertion: Amphibians can tolerate mixing of oxygenated and deoxygenated blood. **(1-Mark)**
Reason: Amphibians have a two-chambered heart.

Q.9 Assertion (A): Significant difference in concentrations of ions observed between fluid in xylem cells of roots and soil. **(1-Mark)**
Reason (R): Xylem cells in roots, in contact with soil, actively take up ions.

Q.10 (i) Name the reproductive and non-reproductive parts of Rhizopus. **(2-Marks)**
(ii) How are the spores protected until they begin to grow?

Q.11 Explain why the amount of urine produced generally decreases in summers (without sufficient hydration) compared to other seasons. **(2-Marks)**

Q.12 Doctors advise taking iodised salt in our diet. Justify its importance in the body. **(2-Marks)**

Q.13 A hormone X' is secreted in blood when a person is under scary situation. **(3-Marks)**
a) Identify the hormone X' and the gland that secretes it.
b) Explain its role in dealing with scary or emergency.

Q.14 On the basis of the characteristics of the processes given in the brackets in each case, differentiate between the following: **(3-Marks)**
A. Products of breakdown of pyruvate in aerobic and anaerobic respiration in human beings (products) of the processes)
B. Respiration and photosynthesis in plants (gas released)
C. Respiration in terrestrial animals and fishes (organs involved)

Q.15 Neha ate boiled sweet potatoes and boiled eggs for breakfast. Help her understand digestion processes: **(4-Marks)**

Attempt either option A or B.

A. Which of these food items is rich in proteins? In which part of the alimentary canal is the digestion of this component initiated? Name the enzymes, conditions required, and the glands associated with the digestion here.

OR

B. Which of these food items contains fats? How is it digested?

C. Which of these food items is rich in starch? How is its digestion initiated?

D. The figure given below represents parts of the human alimentary canal. Which of these parts will have the maximum amount of digested food as soon as the process of digestion is completed?

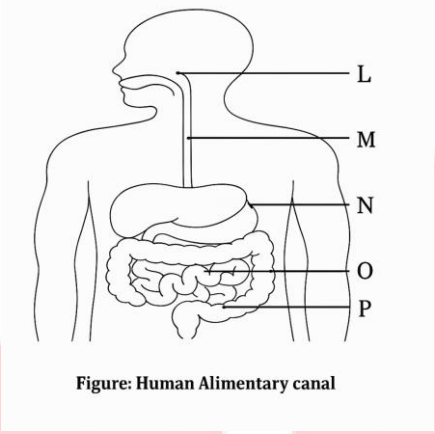


Figure: Human Alimentary canal

Q.16 A. Sameer is advised by a doctor to reduce sugar intake and exercise regularly after blood tests. What disease may he have? Name the hormone and organ responsible.

B. Which hormone is present in rapid cell division areas of a plant, and which hormone inhibits growth?

SECTION-B(CHEMISTRY)

Q.17 Which of the following equations represent redox reactions and what are the values for 'x' and 'y' in these equations? **(1-Mark)**

Equation 1: $CuO(s) + H_2(g) \rightarrow Cu(s) + x\ H_2O(l)$

Equation 2: $CH_4(g) + 2O_2(g) \rightarrow y\ CO_2(g) + 2H_2O(g)$

A. Only equation 1 is a redox reaction, x = 2 and y = 1
B. Only equation 1 is a redox reaction, x = 1 and y = 1
C. Only equation 2 is a redox reaction, x = 1 and y = 2
D. Both equations 1 and 2 are redox reactions, x = 1 and y = 1

Q.18 Four statements about the reactions of oxides with dilute hydrochloric acid and aqueous sodium hydroxide are listed. **(1-Mark)**

I. Copper(II) oxide reacts with aqueous sodium hydroxide, but not with dilute hydrochloric acid
II. Zinc oxide reacts with both dilute hydrochloric acid and aqueous sodium hydroxide.
III. Magnesium oxide reacts with dilute hydrochloric acid but not with aqueous sodium hydroxide.
IV. Carbon dioxide reacts with aqueous sodium hydroxide but not with dilute hydrochloric acid.

Which statements are correct?

A. I and II
B. II and IV
C. I and III
D. II, III and IV

Q.19 A strip of zinc metal is placed separately in two test tubes — 'X' containing aqueous copper(II) sulphate solution and 'Y' containing aqueous magnesium sulphate solution. Which of the following observations is correct? **(1-Mark)**

A. In test tube 'X', a reddish-brown coating is seen on zinc strip, while in test tube 'Y' no reaction takes place.
B. In both test tubes 'X' and 'Y', zinc strip gets coated with a grey layer.
C. In test tube 'X' no reaction occurs, but in test tube 'Y' zinc strip is coated with magnesium.
D. In neither of the test tubes does any reaction take place.

Q.20 Which of the following substances, when dissolved in equal volume of water, will have the lowest pH value? **(1-Mark)**

A. Potassium hydroxide
B. Sodium carbonate
C. Hydrochloric acid
D. Ammonium hydroxide

Q.21 Phenolphthalein is added to dilute hydrochloric acid and to aqueous sodium hydroxide. What is the colour of the phenolphthalein in each solution? **(1-Mark)**

Sample	Colour in dilute hydrochloric acid	Colour in aqueous sodium hydroxide
A	colourless	Pink
B	Pink	Colourless
C	Orange	Yellow
D	red	Pink

Q.22 When lead nitrate is heated, yellow precipitate is formed because of the formation of **(1-Mark)**

A. Nitrogen Oxide
B. Oxygen
C. Lead Iodide
D. Lead Oxide

Q.23 When aqueous solution of silver nitrate is added to aqueous solution of sodium chloride, the aqueous solution formed will be: **(1-Mark)**

A. AgCl
B. $NaNO_3$
C. NaCl
D. $AgNO_3$

Q.24 The following question consists 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

Assertion (A): Highly reactive metals are obtained by electrolytic reduction. **(1-Mark)**
Reason (R): In the electrolytic reduction, metal is deposited at the cathode.

Q.25 In a science lab, the teacher fixes a silver spoon with wax at one end and places a small pin on it. The spoon is then heated at the other end using a spirit lamp. After some time, the pin drops off. **(2-Marks)**
A. If the teacher replaces the silver spoon with a copper spoon, will the students' observation change? Justify your answer.
B. Will the silver spoon melt during the activity? Give reason for your answer.

Q.26 ***Attempt either option A or B.*** **(3-Marks)**

A. An element 'Y' is a soft metal that can be cut with a knife. It reacts vigorously with water to form a strong base and hydrogen gas. It cannot be extracted from its ore by chemical reduction

using carbon.
(i) Can we store 'Y' in kerosene? Give reason to support your answer.
(ii) Identify element 'Y'. Name the process used for its extraction from the ore and write the chemical equation for its extraction.

OR

B. Many old iron railings and gates develop a reddish-brown flaky coating after being exposed to air and moisture for several years.
(i) Why do the railings appear reddish-brown though iron is grey in colour?
(ii) In your opinion, would using aluminium gates instead of iron gates overcome this problem? Give reason.
(iii) In earlier times, thick iron bars were used for making railings. Why was iron preferred over other metals for such construction?

Q.27 Ravi set up an experiment to electrolyse distilled water using two carbon electrodes connected to a battery and a bulb in the circuit. However, he observed that the bulb did not glow and no gases were evolved at the electrodes. His teacher advised him to add a small amount of dilute sulphuric acid to the water. Answer the following questions: **(3-Marks)**
A. Which gases are expected to be formed at the cathode and at the anode after adding dilute sulphuric acid?
B. Why did the bulb not glow when only distilled water was used?
C. Why does adding dilute sulphuric acid allow electrolysis to take place?

Q.28 A school chemistry teacher demonstrated an experiment with three different solutions: dilute hydrochloric acid (HCl), sodium hydroxide (NaOH), and sodium carbonate (Na_2CO_3). He added a few drops of phenolphthalein indicator to each test tube. The students observed that the solution of sodium hydroxide turned pink, hydrochloric acid remained colourless, and sodium carbonate also turned pink.
Next, the teacher slowly added dilute HCl to each of the basic solutions until the pink colour disappeared. In the case of sodium carbonate solution, a brisk effervescence was also observed during the reaction.

Later, the teacher took solid sodium chloride (NaCl) and explained that common salt is neutral in nature. However, when NaCl is reacted with concentrated sulphuric acid, fumes of HCl gas are released. He further explained that salts are formed by neutralisation reactions and can show acidic, basic or neutral behaviour depending on the acid and base from which they are derived. **(4-Marks)**
A. Why did the colour of sodium hydroxide solution change to pink on adding phenolphthalein?
B. Write the chemical equation for the reaction between dilute HCl and sodium carbonate solution. Why was effervescence observed?
C. Why did dilute HCl remain colourless when phenolphthalein was added?
D. Write the balanced chemical equation for the reaction between solid NaCl and concentrated H_2SO_4.

Q.29 A white substance X is used in the construction industry. It is obtained by heating gypsum at 373 K. **(5-Marks)**
A. Identify X and write its chemical formula.
B. Write the chemical equation for its preparation.

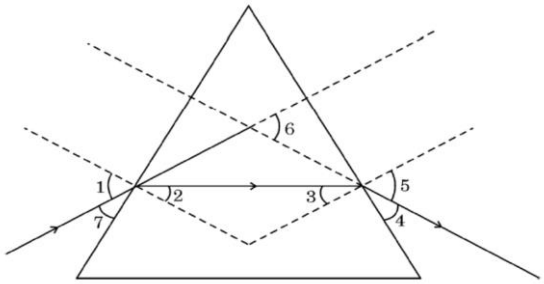
C. Mention its two uses.
D. What happens when X is mixed with water? Write the equation.
E. Classify the following salts as acidic, basic or neutral:

(i) Ammonium chloride (NH_4Cl)
(ii) Sodium carbonate (Na_2CO_3)
(iii) Potassium chloride (KCl)

SECTION-C(PHYSICS)

Q.30 Mirror 'X': Concentrates sunlight in a solar furnace. **(1-Mark)**
Mirror 'Y': Fitted on vehicle to see traffic behind driver.
Which statements are true?
(i) Image formed by 'X' is real, diminished, and at its focus.
(ii) Image formed by 'Y' is virtual, diminished, and erect.
(iii) Image formed by 'X' is virtual, diminished, and erect.
(iv) Image formed by 'Y' is real, diminished, and at its focus.
(A) (i) and (ii) (B) (ii) and (iii)
(C) (iii) and (iv) (D) (i) and (iv)

Q.31 In the given figure, what are the angle of incidence and angle of deviation? **(1-Mark)**



(A) 1 and 5 (B) 7 and 6
(C) 7 and 4 (D) 1 and 6

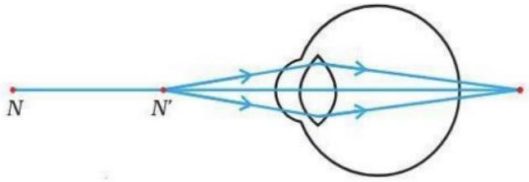
Q.32 The following question consists of two statements – Assertion (A) and Reason (R). Answer these questions by selecting the appropriate option given below:
A. Both A and R are true, and R is the correct explanation of A.
B. Both A and R are true, and R is not the correct explanation of A.
C. A is true but R is false.
D. A is false but R is true

Assertion (A): A point object is placed 26 cm from a convex mirror with focal length 26 cm. The image will not form at infinity. **(1-Mark)**
Reason (R): For above, the equation $\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$ gives v = ∞

Q.33 A wire of length 'l' is gradually stretched so that its length increases to 3l. If its original resistance is R, then its new resistance will be? **(2-Marks)**

Q.34 You are given 2 fuse wires A and B with current ratings 2A and 5A respectively. Justify with reason which of the two would you use with a1000W, 220V room heater? **(2-Marks)**

Q. 35 A. What is the fundamental difference between hypermetropia and myopia in terms of the optical experience of a person? **(3-Marks)**
B. The diagram below shows a special case of an eye defect.



(i) What is the defect that is shown in the figure?
(ii) State one cause for such a defect?
(iii) Explain with reason if a concave lens can be used to correct the defect.

Q.36 An object is placed at a distance of 60 cm from a concave lens of focal length 30 cm.
(a) Use lens formula to find the distance of image from the lens. **(3-Marks)**
(b) Draw a ray diagram to justify your answer in part (a).

Q.37 (a) Why is a normal eye not able to see clearly the objects placed closer than 25 cm?
(b) With the help of a diagram show recombination of the spectrum of white light. **(3-Marks)**

Q.38

The above images are that of a specialized slide projector. Slides are small transparencies mounted in sturdy frames ideally suited to magnification and projection, since they have a very high resolution and a high image quality. There is a tray where the slides are to be put into a particular orientation so that the viewers can see the enlarged erect images of the transparent slides. This means that the slides will have to be inserted upside down in the projector tray.

To show her students the images of insects that she investigated in the lab, Mrs. Iyer brought a slide projector. Her slide projector produced 500 times enlarged and inverted image of a slide on a screen 10 m away. **(4-Marks)**

(a) Based on the text and data given in the above paragraph, what kind of lens must the slide projector have?
(b) If v is the symbol used for image distance and u for object distance then with one reason state what will be the sign for $\frac{v}{u}$ in the given case.
(c) A slide projector has a convex lens with a focal length of 20 cm. The slide is placed upside down 21 cm from the lens. How far away should the screen be placed from the slide projector's lens so that the slide is in focus?

Q.39 A person is unable to see objects distinctly placed within 75 cm from his eyes. **(5-Marks)**
(a) Name the defect of vision the person is suffering from.
(b) List its two possible causes.
(c) Calculate the power of the lens needed to correct this defect. Assume that the near point for the normal eye is 25 cm.