



Delhi Public School, Howrah

PERIODIC ASSESSMENT I (2025-2026)

Class-X

Care must be taken not to write anything on the question paper. All the questions must be attempted in the correct sequence.

Time-1.5Hours

Subject- Science

F.M.-40

General Instructions:

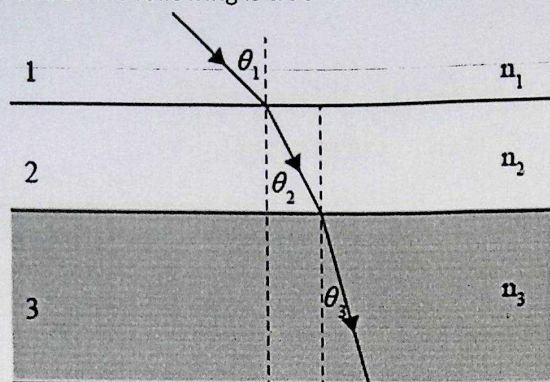
- This question paper consists of 20 questions in 5 sections.
- All questions are compulsory.
- Section A consists of 11 Objective Type Questions carrying 01 mark each.
- Section B consists of 3 Very Short Questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.
- Section C consists of 3 Short Answer Type Questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.
- Section D consists of 2 Long Answer Type Questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.
- Section E consists of 1 source-based/case-based units of assessment of 04 marks each with sub-parts

SECTION A

Select and write one most appropriate option out of the four options given for each of the questions 1-11.
There is no negative mark for incorrect response.

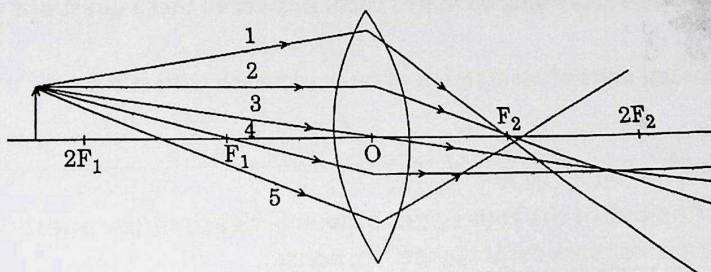
Q. No.	Questions	Marks
1.	Lead (II) nitrate undergoes decomposition to give lead (II) oxide, nitrogen dioxide and oxygen gas. What will the coefficient of nitrogen dioxide in the balanced equation? A. 1 B. 2 C. 3 D. 4	1
2.	In a chemistry laboratory a student was heating crystals of green vitriol strongly in a dry test tube. What will be his observation after sometime? A. crystals remain unchanged B. a brown residue is left C. dense white fumes appear in the tube D. a yellow residue is left	1

3. In the diagram shown below n_1 , n_2 and n_3 are refractive indices of the media 1, 2 and 3 respectively. Which one of the following is true in this case?



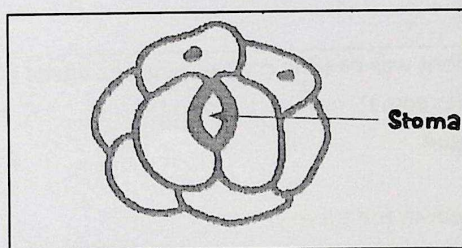
- A. $n_1 = n_2$
- B. $n_1 > n_2$
- C. $n_2 > n_3$
- D. $n_3 > n_1$

4. Out of the five incident rays shown in the figure find the three rays which are obeying the laws of refraction and may be used for locating the position of the image formed by a convex lens:



- A. 1, 2 and 3
- B. 2, 3 and 4
- C. 3, 4 and 5
- D. 1, 2 and 4

5. A student hurriedly drew the diagram of a stomata as shown below. He was not awarded full marks because:

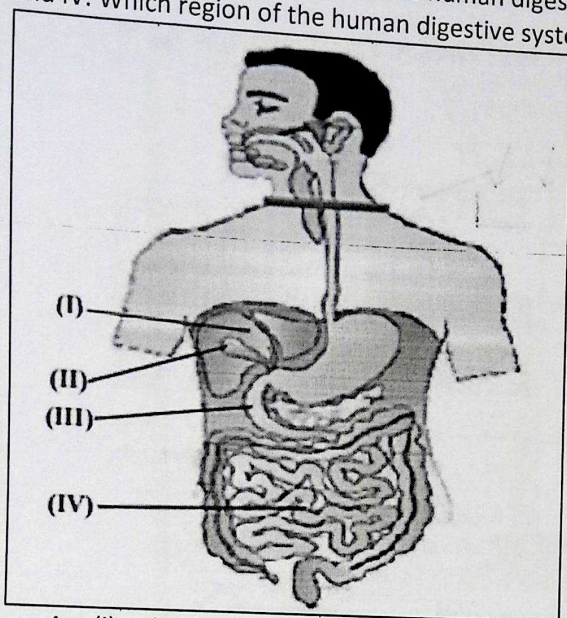


- A. He forgot to draw nuclei in guard cells and label the diagram.
- B. He did not draw nuclei in guard cells and other cells.
- C. He should have drawn nuclei and chloroplasts in guard cells and as well as nuclei in all epidermal cells.
- D. He did not label the stoma in its correct position.

6.

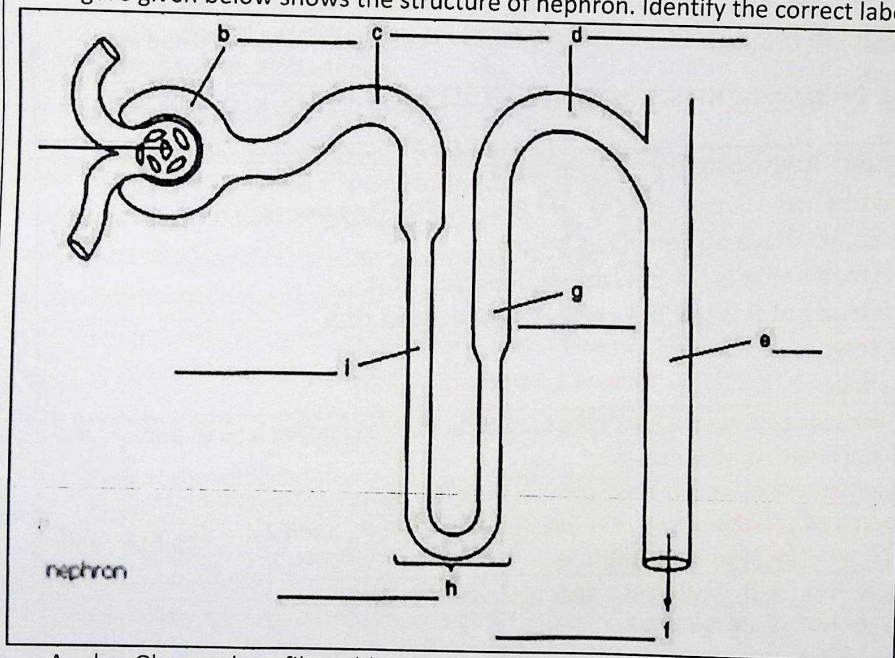
The diagram given below shows the human digestive system. Few structures are marked as I, II, III and IV. Which region of the human digestive system is/are associated with the bile juice?

1



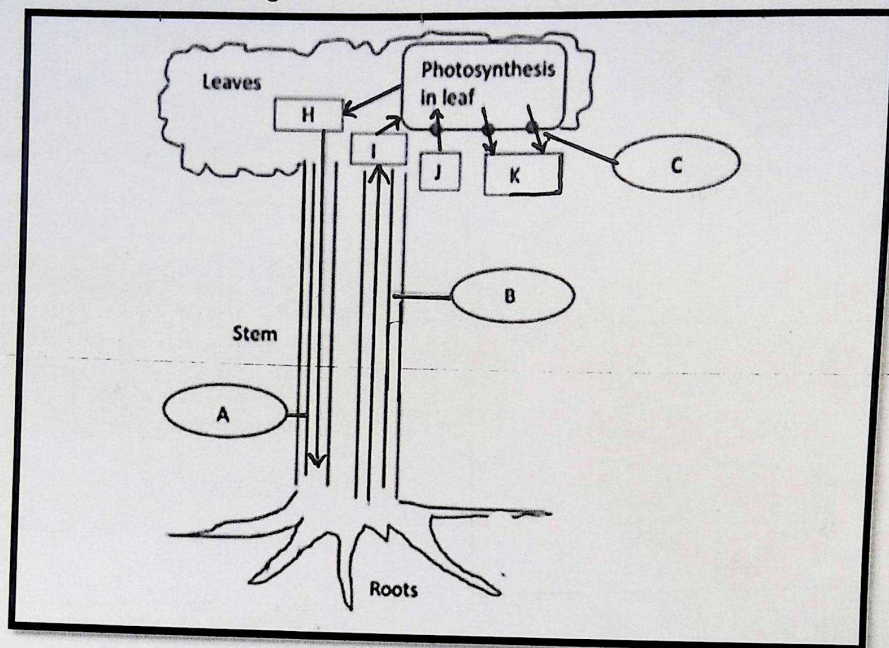
- A. (i) only
 B. (i) and (ii)
 C. (i), (ii), and (iii)
 D. (i), (ii), and (iv)

7. The figure given below shows the structure of nephron. Identify the correct label with its function.



- A. b – Glomerulus - filters blood to form urine
 B. b - Bowman's Capsule – filters blood and separates waste from the blood
 C. h - Collecting Duct - collects urine from the nephrons
 D. d – PCT – selective reabsorption

8. Carefully study the diagram of transportation in plants. Select the option which gives correct identification among the following-



- A. A – Phloem, B - Xylem, C – Stomata, H – Sucrose, I – Water, J - Carbon dioxide, K- Oxygen and water
 B. A – Phloem, B - Xylem, C – Stomata, H – Sucrose, I – Water, J - Oxygen, K- Carbon dioxide
 C. A – Xylem, B - Phloem, C – Stomata, H – Water, I – Sucrose, J - Oxygen, K- Carbon dioxide and water
 D. A – Xylem, B - Phloem, C – Stomata, H – Sucrose, I – Water, J -Carbon dioxide, K- Oxygen and water

Q. no 9 to 11 are Assertion - Reasoning based questions.

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

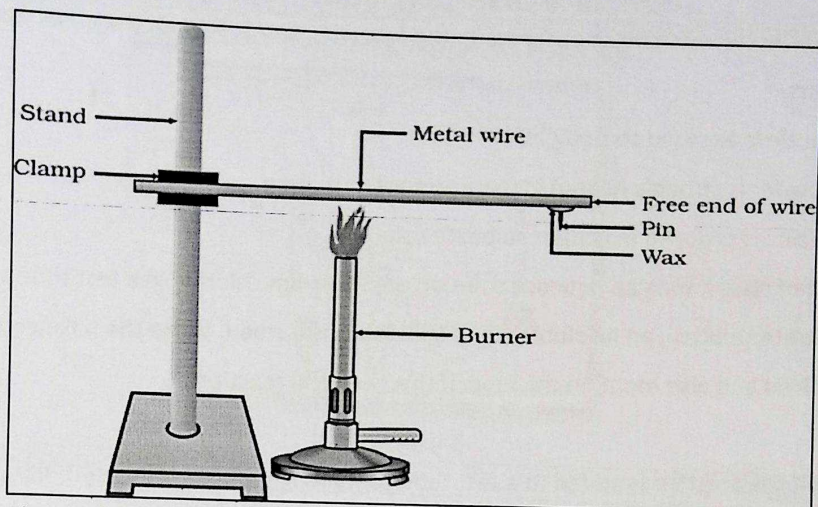
- A. Both A and R are true and R is the correct explanation of A
 B. Both A and R are true but R is not the correct explanation of A
 C. A is true but R is false
 D. A is false but R is true

9. **Assertion (A):** When a convex lens of power + 2D is held in contact with a concave lens of power - 4 D, the combination has a focal length of -0.5 m.
Reason(R): If a number of lenses are placed in close contact then the power of the combination of lenses is equal to algebraic sum of the powers of the individual lenses. If P_1 and P_2 are the powers of two lenses, the combined power P is given by: $P = P_1 + P_2$
10. **Assertion (A):** Silver and gold react with oxygen at a very high temperature.
Reason (R): Silver and gold are less reactive metals.
11. **Assertion (A):** A growing plant appears to bend towards the direction of light.
Reason (R): The plant hormone auxin diffuses towards the shady side of the shoot.

SECTION B

Q. no. 12 to 14 are Very Short Answer Type Questions.

12. Below there is a diagram showing an experimental set-up. Study the diagram and answer the following questions:



- A. What will be the observation after sometime in the experiment shown above?
B. Write down the most appropriate conclusion that you can draw from this particular experiment?

13. A. Light travels from rarer medium 1 to denser medium 2. Angle of incidence & refraction are 45° & 30° respectively. Calculate the refractive index of second medium with respect to the first.
B. Refractive index of glass is $3/2$ and refractive index of water is $4/3$. If the speed of light in glass is $2.00 \times 10^8 \text{ m/s}$, find the speed of light in water.

14. A. Using only flow chart write the path of oxygen from nostrils to respiring tissue cells.
B. Why are dark reaction called so?

SECTION C

Q.no. 15 to 17 are Short Answer Type Questions.

15. Rohan treated small pieces of a lustrous, divalent element 'M' with sodium hydroxide solution. He observed the formation of bubbles in the reaction mixture. He had same observations when this element was treated with hydrochloric acid. Identify the element 'M'. Write balanced chemical equations for both the reactions.
16. In an experiment with a rectangular glass slab, a student observed that a ray of light incident at an angle of 55° with the normal on one face of the slab, after refraction struck the opposite face of the slab making an angle of 40° with the normal before emerging out into air.
A. Draw a labelled diagram to show the path of this ray.
B. What value will you assign to the angle of refraction and angle of emergence?
C. List any two factors on which the lateral displacement of a particular substance depends.
17. A. (i) Name the plant hormones responsible for the following functions- growth of the stem and wilting of leaves.
(ii) Plants do not have any other system but yes if we touch a sensitive plant some observable changes take place in its leaves. Explain how could this plant respond to the external stimuli and how is it communicated.
OR
B. (i) What do you understand by the sleep movement of plant organs?

(ii) How is the movement of leads of the sensitive plant different from the movement of a shoot towards light?

SECTION-D

Q.no. 18 to 19 are Long Answer Type Questions.

18. A. (i) Mention the colour changes observed in the following cases. Explain the observations with proper reasons.
- (a) silver chloride is exposed to sunlight.
 - (b) copper powder is strongly heated in the presence of oxygen.
 - (c) a piece of zinc is dropped in copper sulphate solution.
- (ii) A student of class X took an aqueous solution of potassium chloride in a test tube and mixed it with silver nitrate solution, an insoluble white substance is formed. Write the balanced chemical reaction involved and also mention the type of this chemical reaction.

OR

- B. (i) Lead nitrate solution is added to a test tube containing potassium iodide solution.
- (a) What will be the observation at the end of the experiment?
 - (b) Write the balanced chemical equation for the reaction involved.
 - (c) Name the type of this reaction justifying your answer.
- (ii) Identify the substances that are oxidized and the substances that are reduced in the following reactions:
- (a) $\text{Fe}_2\text{O}_3 + 2\text{Al} \rightarrow \text{Al}_2\text{O}_3 + 2\text{Fe}$
 - (b) $2\text{PbO} + \text{C} \rightarrow 2\text{Pb} + \text{CO}_2$

19. Study the data given below showing the focal length of three concave mirrors A, B and C and the respective distances of objects placed in front of the mirrors:

Case	Mirror	Focal Length (cm)	Object Distance (cm)
1	A	20	45
2	B	15	30
3	C	30	20

- (i) In which one of the above cases the mirror will form a diminished image of the object? Justify your answer.
- (ii) What is the nature and size of the image formed by mirror C? Draw ray diagram to justify your answer.
- (iii) An object is placed at a distance of 18 cm from the pole of a concave mirror of focal length 12 cm. Find the position of the image formed in this case.

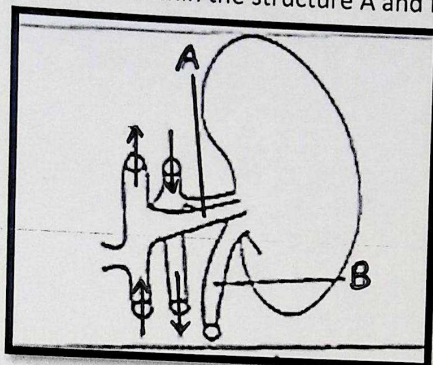
SECTION - E

Q.no. 20 is case - based/data -based questions with 2 to 3 short sub - parts. Internal choice is provided in one of these sub-parts.

20.

A figure given below shows a diagram of a kidney and its associated structures. The table lists the percentage of certain components found within the structure A and B.

1+1+2



In Structure A

COMPONENTS	CONCENTRATION %
Urea	0.03
Glucose	0.10
Amino acid	0.05
Salts	0.72
Proteins	8.00

In Structure B

COMPONENTS	CONCENTRATION %
Urea	2.00
Glucose	0.00
Amino acid	0.00
Salts	1.50
Proteins	0.00

- Identify structure A and B.
- Using only the information given in the tables, deduce the functions of the kidney.
- Explain how the proportions of components present in part B would change if a person is suffering from kidney disorder.

OR

- Why is the removal of faeces from the alimentary canal not considered to be excretion?