



Delhi Public School, Howrah

PERIODIC ASSESSMENT - I (2024-2025)

CLASS-X

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

SUBJECT- SCIENCE (Code No. 086)

TIME- 1.5 HOURS

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 Answer Type 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 unit of assessment of 04 marks with sub-parts

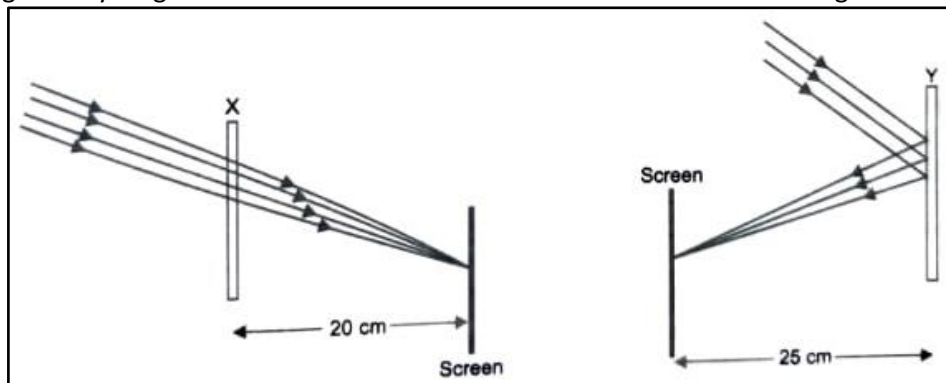
SECTION A

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 an incorrect response.

Q. No.	Questions	Marks
1.	Identify 'x', 'y' and 'z' in the following balanced reaction. <div style="border: 1px solid black; padding: 10px; display: inline-block; margin: 10px 0;"> $x \text{Pb}(\text{NO}_3)_2 (\text{s}) \xrightarrow{\text{Heat}} y \text{PbO} + z \text{NO}_2 + \text{O}_2$ </div> (a) 2, 4, 2 (b) 2, 2, 4 (c) 2, 4, 4 (d) 4, 2, 2	1
2.	Which among the following statements is incorrect for magnesium metal? (a) It burns in oxygen with a dazzling white flame. (b) It reacts with cold water to form magnesium oxide and evolves hydrogen gas. (c) It reacts with hot water to form magnesium hydroxide and evolves hydrogen gas. (d) It reacts with steam to form magnesium hydroxide and evolves hydrogen gas.	1
3.	When light is incident on a glass slab, the incident ray, refracted ray and emergent rays are in three media A, B and C. If n_1 , n_2 and n_3 are the refractive indices of A, B and C respectively and the emergent ray is parallel to the incident ray, which of the following is true? <div style="text-align: center; margin: 10px 0;"> </div> (a) $n_1 < n_2 < n_3$ (b) $n_1 > n_2 > n_3$ (c) $n_1 < n_2 = n_3$ (d) $n_1 = n_3 < n_2$	1

4.

Study the given ray diagrams and select the correct statement from the following:

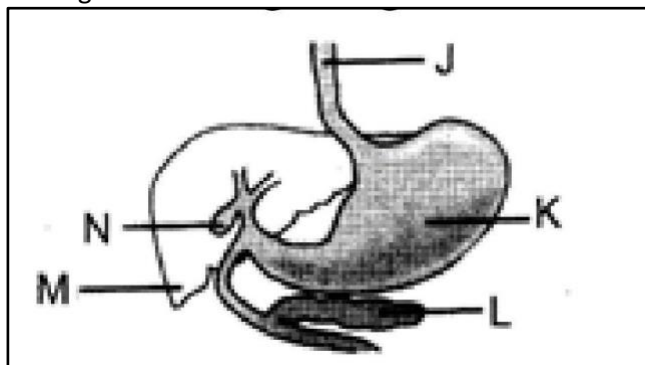


- (a) Device X is a concave mirror and device Y is a convex lens, whose focal lengths are 20 cm and 25 cm respectively.
- (b) Device X is a convex lens and device Y is a concave mirror, whose focal lengths are 10 cm and 25 cm respectively.
- (c) Device X is a concave lens and device Y is a convex mirror, whose focal lengths are 20 cm and 25 cm respectively.
- (d) Device X is a convex lens and device Y is a concave mirror, whose focal lengths are 20 cm and 25 cm respectively.

1

5.

The diagram given below shows the part of the alimentary canal. Which two parts produce substances involved in the digestion of fats?

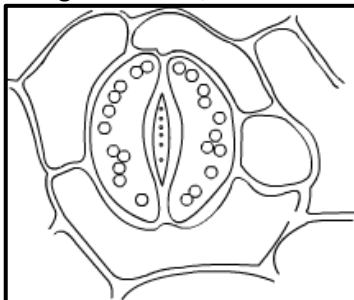


- (a) J and K
- (b) M and N
- (c) L and M
- (d) L and J

1

6.

In the sketch of the stomatal apparatus given below, which one of the following is missing?



- (a) Cell membrane of the cell
- (b) Cell walls of the cells
- (c) Nuclei of the guard cells
- (d) Chloroplast of the guard cells

1

7.	<p>Oxygen saturation levels refer to the extent haemoglobin is bound to oxygen. As altitude increases, the atmospheric pressure decreases. Which of the following graphs correctly represents the oxygen saturation levels as altitude increases?</p> <div style="text-align: center;"> </div> <p>(a) P (b) Q (c) R (d) S</p>	1
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8.	<p>Consider the following criticisms that are generally addressed when a new project is launched:</p> <p>I. Displacement of peasants and local tribals without compensation. II. Swallowing up large amount of public money without any benefits. III. Deforestation and loss of biodiversity.</p> <p>The criticisms about large dams in particular are</p> <p>(a) I and II (b) II and III (c) I and III (d) I, II and III</p>	1
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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:

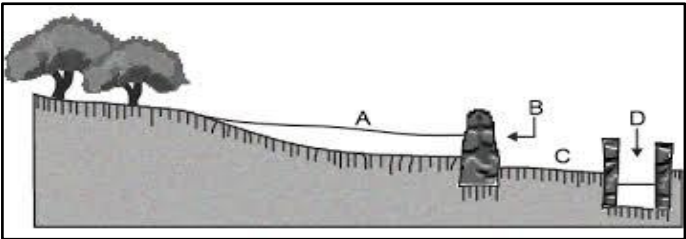
(a) Both A and R are true and R is the correct explanation of A.
 (b) Both A and R are true and R is not the correct explanation of A.
 (c) A is true but R is false.
 (d) A is false but R is true.

9.	<p>Assertion(A): Higher is the refractive index of a medium or denser the medium, lesser is the velocity of light in that medium. Reason(R): Refractive index is inversely proportional to velocity.</p>	1
10.	<p>Assertion (A): Photosynthesis is considered as an endothermic reaction. Reason (R): Energy gets released in the process of photosynthesis.</p>	1
11.	<p>Assertion(A): There are abundant Coliform bacteria in river Ganga. Reason(R): Coliform bacteria are found in human intestine and unburnt corpses.</p>	1

SECTION B

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

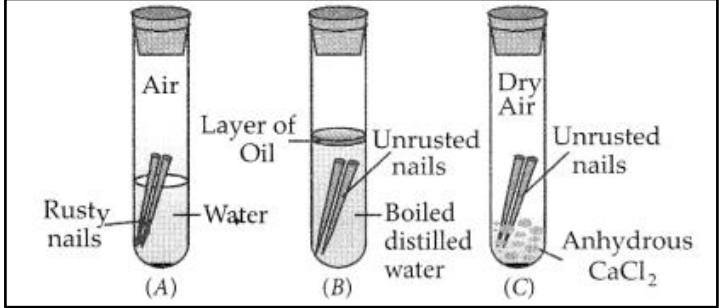
12.	<p>What is observed when carbon dioxide gas is passed through lime water for long duration? Also, write the chemical equation for the reaction involved.</p>	2
13.	<p>Rakesh is holding a lens. He finds out that the sharp image of the window pane of his science laboratory is formed at a distance of 15 cm from the lens. He now tries to focus the building visible to him outside the window instead of the window pane without disturbing the lens.</p>	1+1

	(a) In which direction will he move the screen to obtain a sharp image of the building? (b) What is the type and the approximate focal length of the lens?	
14.	Given below is a traditional system of resource management. 	2

- (a) Identify the system and label the parts A and B.
(b) Mention one advantage of this system.

SECTION C

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

15.		3
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Write your observation & conclusion from the above picture for three different test tubes (A), (B), (C).

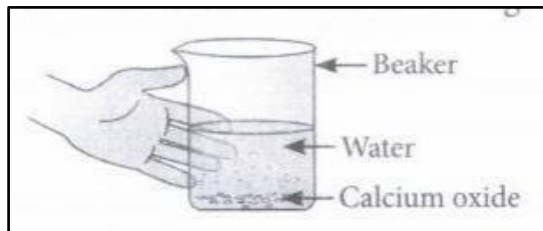
16.	It is desired to obtain an erect image of an object using a concave mirror of focal length 12 cm. (a) What should be the range of object distance in this case? Will the image be smaller or larger than the object? (b) Draw a ray diagram to show the formation of image in this case. (c) Where will the image of this object be, if it is placed 24 cm in front of the mirror?	1+1+1
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17.	(a) Why is diffusion insufficient to meet the oxygen requirements of multicellular organisms like humans? (b) Schematically show the breakdown of glucose by various pathways. OR (a) Why is the small intestine in herbivores longer than in carnivores? (b) Diagrammatically represent the structural and functional unit of kidney.	3
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SECTION-D

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

18.	(a) Identify the reductant and oxidant in the following reaction. $\text{Fe} + \text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + \text{H}_2$ (b) 2 g of ferrous sulphate crystals are heated in a dry boiling tube. (i) Write the change in colour during the process. (ii) Write balanced chemical equation for the reaction. (c) Give an example of a photolytic decomposition reaction. OR (a) In the following chemical change, what will the student feel? Name this type of change in terms of energy.	2+2+1
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- (b) Barium chloride on reaction with ammonium sulphate forms barium sulphate and ammonium chloride. Translate the reaction into chemical equation and balance it.
- (c) Give an example where chemical energy changes to electrical energy.

19. (a) Two lenses have power of (i) +2D and (ii) -4D. What is the nature and focal length of each lens?
 (b) An object is kept at a distance of 100 cm from each of the above lenses. Calculate
 (i) Image distance in each of the two cases.
 (ii) Magnification in each of the two cases.

OR

- (a) A monochromatic light of wavelength 589 nm is incident from air on water. What is the wavelength, frequency and speed of refracted light if the refractive index of water is $\frac{4}{3}$.
 (b) Why is absolute refractive index always greater than 1? Explain.
 (c) A girl in a mirror house finds her face appearing highly magnified, lower position of her body of the same size but laterally inverted and middle position of the body highly diminished in size. What is the design of the mirror?

2+2+1

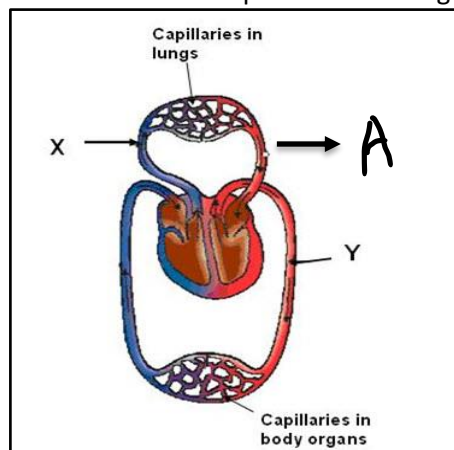
3+1+1

SECTION - E

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

20. Refer to given diagram on double circulation seen in mammals.
 Given below is a schematic representation of transport and exchange of oxygen and carbon dioxide.

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- (a) Identify the parts labelled X and Y.
 (b) Mention the function of the part labelled A.
 (c) Explain the transport of oxygen and carbon dioxide from heart to lungs.

OR

- (c) Which chamber of the heart receives oxygenated blood? Explain how is the oxygenated blood from this particular chamber sent to all the body parts?