



THE INDIAN SCHOOL
PERIODIC TEST-II (2024-25)
SCIENCE (086)
X
SET-B

Time allowed: 2.5 hours

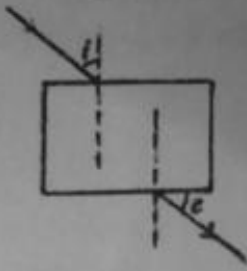
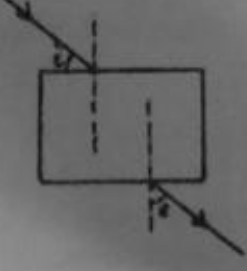
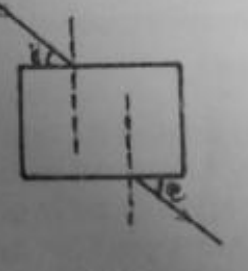
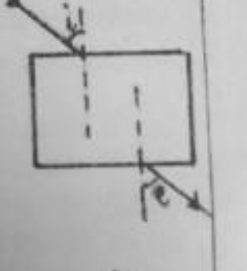
Maximum Marks: 60

No. of printed pages: 06

General Instructions:

- (i) This question paper consists of 27 questions in 6 sections.
- (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.
- (iii) Section A consists of 13 objective type questions carrying 1 mark each
- (iv) Section B consists of 4 very short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.
- (v) Section C consists of 4 short answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.
- (vi) Section D consists of 3 long answer type questions carrying 05 marks each. Answers to these questions should be in the range of 80 to 120 words.
- (vii) Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

SECTION-A**Multiple Choice Questions (13 Marks)**

Q No.	Question	Marks
1	A full length image of a distant tall building can definitely be seen using (a) a concave mirror (b) a convex mirror (c) a plane mirror (d) both a concave as well as a plane mirror	1
2	A student performs an experiment on tracing the path of a ray of light passing through a rectangular glass slab for different angles of incidence. Which out of the following diagrams gives the correct measure of the angle of incidence and the angle of emergence? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>(A)</p> </div> <div style="text-align: center;">  <p>(B)</p> </div> <div style="text-align: center;">  <p>(C)</p> </div> <div style="text-align: center;">  <p>(D)</p> </div> </div>	1
3	The persistence of vision for the human eye is	1

	(a) 1/10th of a second (b) 1/16th of a second (c) 1/6th of the second (d) 1/18th of a second											
4/	Amino acids are formed by the decomposition of which component of our diet? (a) Carbohydrate (b) Starch (c) Protein (d) Fat	1										
5/	A scientist in a chemistry lab wants to prepare a salt of pH value 5. The table below shows the acids and bases present in the lab. <table border="1" style="margin: 10px auto;"> <tbody> <tr> <td>1</td> <td>HCl</td> </tr> <tr> <td>2</td> <td>NaOH</td> </tr> <tr> <td>3</td> <td>H₂CO₃</td> </tr> <tr> <td>4</td> <td>NH₄OH</td> </tr> <tr> <td>5</td> <td>CH₃COOH</td> </tr> </tbody> </table> <p>Which of the above samples must be used to get the desired salt?</p> (a) HCl and NaOH (b) H ₂ CO ₃ and NaOH (c) HCl and NH ₄ OH (d) CH ₃ COOH and NaOH	1	HCl	2	NaOH	3	H ₂ CO ₃	4	NH ₄ OH	5	CH ₃ COOH	1
1	HCl											
2	NaOH											
3	H ₂ CO ₃											
4	NH ₄ OH											
5	CH ₃ COOH											
6/	Identify X and Y in the following reaction equation. $\text{NaCl} + \text{H}_2\text{O} + \text{CO}_2 + \text{NH}_3 \rightarrow \text{X} + \text{Y}$ (a) X-HCl ; Y-NaHCO ₃ (b) X-NH ₄ Cl ; Y-NaHCO ₃ (c) X-HCl ; Y-NaHCO ₃ (d) X-NH ₃ Cl ; Y-NaHCO ₃	1										
7/	The liver secretes bile which is needed to digest fats in our food. The pancreas secretes several enzymes needed to break down food. Which of the following is true for the food we eat? (a) It passes only through the liver. (b) It passes only through the pancreas. (c) It passes through both the liver and the pancreas. (d) It passes neither through the liver nor the pancreas.	1										
8/	Which of the following statement(s) is/(are) correct?	1										

- (a) Pyruvate can be converted into ethanol and carbon dioxide by yeast.
- (b) Fermentation takes place in aerobic bacteria.
- (c) Fermentation takes place in mitochondria.
- (d) Fermentation is a form of anaerobic respiration.

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

9/ Which of the following is a direct consequence of impaired kidney function in the human body?

- (a) Increased production of red blood cells
- (b) Decreased blood pressure
- (c) Elevated levels of urea and creatinine in the blood
- (d) Enhanced digestion of proteins

The following question consists 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.

10/ Assertion : The sky appears blue due to the scattering of the colour blue.
Reason : Blue light has a longer wavelength.

11/ Assertion: Sodium Hydroxide is formed during the Chlor-alkali process.
Reason: Electricity is passed through Sodium Hydroxide during the chlor- alkali process.

12/ Assertion: Plants are the primary producers in an ecosystem.
Reason: Plants convert solar energy into chemical energy through the process of photosynthesis.

13/ Assertion: Ozone is formed in the upper atmosphere, by O_2 in the presence of UV radiations.
Reason: Ozone depletion will lead to UV rays reaching the earth, which may cause skin cancer.

SECTION-B (08 Marks)

Q No.	Question	M
14	<p>(a) What is the role of the ciliary muscles in the human eye? Write their significance.</p> <p>(OR)</p> <p>(b) A person cannot read the newspaper placed nearer than 50 cm from his eyes. Name the vision defect that he is suffering from. Write the causes of this defect.</p>	

15	How far should an object be placed from the pole of a concave mirror of focal length 20cm, to form a real image whose size is $\frac{1}{5}$ the size of the object?	
16	(a) Justify the amphoteric nature of zinc oxide with chemical equations. (b) Why does calcium start floating when it reacts with water? (OR) Give reasons for the following: (i) Hydrogen gas is not evolved when most of metals react with nitric acid. (ii) Metals conduct electricity.	2
17	(a) How does the stomach protect itself from its own acidic environment? (b) What is peristalsis?	2

SECTION- C (12 Marks)

Q No.	Question	Marks
18	(i) Draw a ray diagram for image formation in the following cases: (a) when an object is placed between C and F of a concave mirror. (b) when an object is placed between the pole and the focus of a convex lens. (ii) An optical fibre cable has a refractive index of 1.48. What is the speed of light in the cable?	3
19	Mention with reasons, the colour changes observed when: (i) Silver chloride is exposed to sunlight. (ii) Copper powder is strongly heated in the presence of oxygen. (iii) A piece of zinc is dropped in copper sulphate solution.	3
20	Explain the role of auxin in the phototropic response of a plant. What would happen if the plant's tip is covered with an opaque cap?	3
21	(a) Differentiate between blood and lymph. (b) Briefly describe the shape and function of human red blood corpuscles. OR How does the human respiratory system ensure that oxygen reaches the bloodstream and carbon dioxide is removed? What could happen if the alveoli are damaged?	3

SECTION- D (12 Marks)

Q No.	Question	Mar
22	Read the following passage and answer the questions.	4

One of nature's most splendid masterpieces is the rainbow. A rainbow is an excellent demonstration of the dispersion of light and one more piece of evidence that visible light is composed of a spectrum of wavelengths, each associated with a distinct colour. To view a rainbow, the sun must be at your back as you look at an approximately 40 degree angle above the ground into a region of the atmosphere with suspended droplets of water or even a light mist.

- Which colour of light refracts most when passes through a prism? Give reason.
- Explain the formation of the rainbow.
- Draw a labelled diagram to explain the formation of a rainbow in the sky.
- Danger signals are red in colour. Give reasons.

23 Read the following passage and answer the questions.

4

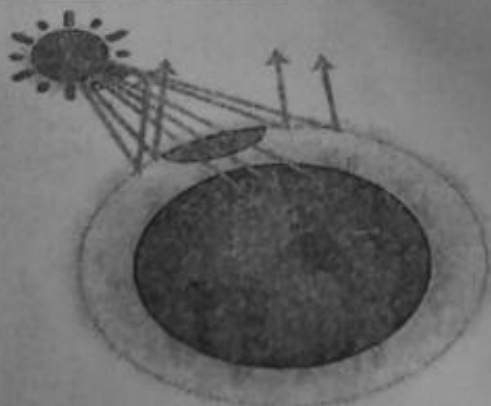
Crystalline solids are formed by neatly packed ions of opposite charge. These compounds are usually formed when metals react with non-metals. Elements can gain or lose electrons in order to attain their nearest noble gas configuration. The formation of ions (either by gaining or losing electrons) for the completion of octet helps them gain stability. For example, metal 'X' combines with non-metal 'Y' by the transfer of electrons to form compound Z.

- State the type of bond in compound Z.
- Justify the high melting point and boiling point of compound Z.
- Why will these compounds not dissolve in kerosene or petrol?
- Will this compound be a good conductor of electricity? Give reasons.

24 Read the following passage and answer the questions.

1+1+2

In the early 1980s, scientists discovered a significant thinning of the ozone layer over Antarctica, commonly referred to as the "ozone hole." The ozone layer is crucial for life on Earth as it absorbs the majority of the sun's harmful ultraviolet (UV) radiation. The thinning of the ozone layer has been attributed to the release of chlorofluorocarbons (CFCs) and other ozone-depleting substances (ODS). These chemicals were widely used in refrigeration, air conditioning, aerosol sprays, and



foam-blowing agents. As the ozone layer became thinner, more UV radiation began to reach Earth's surface, leading to an increase in health and environmental problems.

- (a) How do CFCs lead to the depletion of the ozone layer ?
- (b) What role does the ozone layer play in protecting living organisms on Earth?
- (c) How does ozone layer depletion affect human health and what measures can individuals take to protect themselves from increased UV exposure?

SECTION- E (15 Marks)

Q No.	Question	Marks
25	<p>(i) A convex lens forms an image of an object at a distance of 50 cm. If the distance of the object from the mirror is 25 cm, calculate the magnification. Calculate the focal length of the lens and find the position and nature of the image. Draw a ray diagram to justify your answer.</p> <p>(ii) 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.</p>	3+2
26	<p>(a) Some of the world's great monuments, including the Colosseum in Rome, have deteriorated substantially due to acid rain. Explain this fact by giving a chemical equation. <i>acidic</i></p> <p>(b) Justify the basic nature of the non-metal oxide with the help of an example.</p> <p>(c) On diluting an acid, it is advised to add acid to water and not water to acid. Explain why it is so advised.</p> <p>(d) Give reasons for the following:</p> <p>(i) Only one half of the water molecule is shown in the formula of plaster of Paris.</p> <p>(ii) POP is used by doctors for supporting fractured bones.</p>	4 5
27	<p>(i) Give reasons for the following.</p> <p>(a) Adrenaline helps in dealing with emergency situations.</p> <p>(b) Secretions of the growth hormone should be specific to the human body.</p> <p>(c) Endocrine glands release their secretions into the blood.</p> <p>(ii) An unconscious man, withdraws his foot when pricked by a pin. Why?</p>	3+2