

I -PERIODIC TEST : 2022-23

CLASS - X (CBSE)

SCIENCE

M.M.: 50

Time: 2 hrs.

General Instructions: -

- i) This question paper comprises of four Sections- A, B, C, and D
- ii) All questions are compulsory.
- iii) Section -A consists of 1 mark questions contains MCQ & case study type questions.
- iv) Section-B consists of 1 mark questions contains objective type questions
- v) Section-C consists of 2 marks questions contains short type questions
- vi) Section-D consists of 5 marks questions contains long type questions

SECTION-A [20 Marks]

COMPETENCY BASED QUESTIONS (MCQ and Case Study Based Type Questions)

Q.1. Q.1. A 10 mm long owl pin is placed vertically in front of a concave mirror. A 5 mm long image of the owl pin is formed at 30 cm in front of the mirror. The focal length of this mirror is : [1]

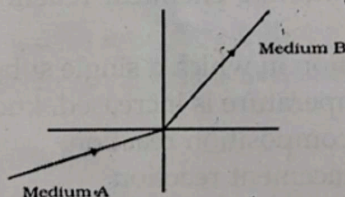
- (a) - 30 cm (b) - 20 cm
(c) - 40 cm (d) - 60 cm

Q.2. Q.2. Under which of the following conditions a concave mirror can form a real image larger than the actual object ? [1]

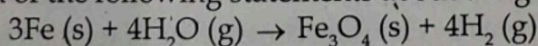
- (a) When object is kept at a distance equal to its radius of curvature.
(b) When object is placed between the focus and centre of curvature.
(c) When object is kept at a distance less than its focal length.
(d) When object is kept at a distance greater than its radius of curvature.

Q.3. A light ray enters from medium A to medium B as shown in figure. The refractive index of medium B relative to medium A will be : [1]

- (a) greater than unity
(b) less than unity
(c) equal to unity
(d) zero



Q.4. Which of the following statements about the given reaction are correct ? [1]



1. Iron metal is getting oxidised
2. Water is getting reduced
3. Water is acting as reducing agent
4. Water is acting as oxidising agent

1. (i), (ii) and (iii)
2. (iii) and (iv)
3. (i), (ii) and (iv)
4. (ii) and (iv)

Q.5. $\text{Pb} + \text{CuCl}_2 \rightarrow \text{PbCl}_2 + \text{Cu}$ [1]

The above reaction is an example of :

- (a) combination
(b) double displacement
(c) decomposition
(d) displacement

Q.6. A student performs an experiment to form aluminum chloride from aluminum and chlorine. Which options give the chemical equation of the reaction ? [1]

- (a) $\text{Al} + \text{Cl}_2 \rightarrow \text{AlCl}_2$
(b) $2\text{Al} + \text{Cl}_2 \rightarrow 2\text{AlCl}$
(c) $2\text{Al} + 3\text{Cl}_2 \rightarrow 2\text{AlCl}_3$
(d) $3\text{Al} + 3\text{Cl}_2 \rightarrow 3\text{AlCl}_3$

- Q.7. In amoeba, food is digested in the : [1]
 (a) food vacuole
 (b) mitochondria
 (c) pseudopodia
 (d) chloroplast
- Q.8. What are the products obtained by anaerobic respiration in plants ? [1]
 (a) Lactic acid + Energy
 (b) Carbon dioxide + Water + Energy
 (c) Ethanol + Carbon dioxide + Energy
 (d) Pyruvate
- Q.9. The opening and closing of the stomatal pore depends upon : [1]
 (a) Oxygen
 (b) temperature
 (c) water in the guard cells
 (d) concentration of CO_2
- Q.10. Magnification produced by a rear view mirror fitted in vehicles : [1]
 (a) is less than one
 (b) is more than one
 (c) is equal to one
 (d) can be more than or less than one depending upon the position of the object in front of it.

CASE STUDY TYPE QUESTIONS [10 Marks]

NOTE: Attempt all the questions from Q. 11 to Q. 13]

- Q.11. A chemical reaction is a representation of chemical change in terms of symbols and formulae of reactants and products. There are various types of chemical reactions like combination, decomposition, displacement, double displacement, oxidation and reduction reactions. Reactions in which heat is released along with the formation of products are called exothermic chemical reactions. All combustion reactions are exothermic reactions. [1×4=4]
- (i) The chemical reaction in which a single substance breaks down into two or more when its temperature is increased. known as :
 (a) thermal decomposition reaction
 (b) single displacement reaction
 (c) double displacement reaction
 (d) photolytic decomposition reaction
- (ii) Complete the following statements by choosing correct type of reaction for X and Y.
 Statement 1: The heating of lead nitrate is an example of 'X' reaction.
 Statement 2: The burning of magnesium is an example of 'Y' reaction.
 (a) X- Combination, Y- Decomposition
 (b) X- Decomposition, Y-Combination
 (c) X- Combination, Y-Displacement
 (d) X- Displacement, Y-Decomposition
- (iii) A white salt on heating decomposes to give brown fumes and yellow residue is left behind. The yellow residue left is of :
 (a) lead nitrate (b) nitrogen oxide
 (c) lead oxide (d) oxygen gas
- (iv) Which of the following reactions represents a combination reaction ?
 (a) $\text{CaO(s)} + \text{H}_2\text{O(l)} \rightarrow \text{Ca(OH)}_2\text{(aq)}$
 (b) $\text{CaCO}_3\text{(s)} \rightarrow \text{CaO(s)} + \text{CO}_2\text{(g)}$
 (c) $\text{Zn(s)} + \text{CuSO}_4\text{(aq)} \rightarrow \text{ZnSO}_4\text{(aq)} + \text{Cu(s)}$
 (d) $2\text{FeSO}_4\text{(s)} \rightarrow \text{Fe}_2\text{O}_3\text{(s)} + \text{SO}_2\text{(g)} + \text{SO}_3\text{(g)}$
- Q.12. The curved surface of a spoon can be considered as a spherical mirror. A highly smooth polished surface is called mirror. The mirror whose reflecting surface is curved inwards or outwards is called a spherical mirror. Inner part works as a concave mirror and the outer bulging part acts as a convex mirror. The center of the reflecting surface of a mirror is called pole and the radius of the sphere of which the mirror is formed is called radius of curvature. [1×3=3]

- (i) When a concave mirror is held towards the sun and its sharp image is formed on a piece of carbon paper for some time, a hole is burnt in the carbon paper. What is the name given to the distance between the mirror and carbon paper ?
- Radius of curvature
 - Focal length
 - Principal focus
 - Principal axis
- (ii) The distance between pole and focal point of a spherical mirror is equal to the distance between :
- pole and centre of curvature
 - focus point and centre of curvature
 - pole and object
 - object and image
- (iii) The focal length of a mirror is 15 cm. The radius of curvature is :
- | | |
|-----------|-----------|
| (a) 15 cm | (b) 30 cm |
| (c) 45 cm | (d) 60 cm |
- Q.13. Secretion is the production of useful chemical substances like hormones, enzymes or other molecules by glands, endocrine glands or specialized cells. For example: The liver secretes bile, the islets of Langerhans secrete insulin, epithelial lining of the large intestine secrete mucus. [1×3=3]
- Name an organ that performs both excretion and osmoregulation.
 - How are wastes formed the body ?
 - What are the two main groups of excretory wastes found in animals ?

SECTION-B [10 Marks]

Fill in the blanks (Q. 14 to Q. 20)

- Q.14. Phenolphthalein and methyl orange are _____ indicators. [1]
- Q.15. When an acid reacts with a metal, _____ gas is evolved and a corresponding _____ is formed. [1]
- Q.16. _____ acid is present in an ant sting. [1]
- Q.17. Image formed by a plane mirror is always _____ and _____. [1]
- Q.18. The focal length of a spherical mirror is equal to _____ its radius of curvature. [1]
- Q.19. A _____ mirror is used as a head mirror by the doctors to concentrate light on the body parts to be examined. [1]
- Q.20. Match the terms in column I with those in column II : [1×4=4]

<u>Column- I</u>	<u>Column- II</u>
(i) Trypsin	(a) Liver
(ii) Amylase	(b) Gastric glands
(iii) Bile	(c) Pancreas
(iv) Pepsin	(d) Saliva

SECTION - C [10 Marks] (SHORT ANSWER TYPE QUESTIONS)

- Q.21. State laws of refraction of light. [2]
- Q.22. The pH of three solutions A, B and C are 4, 9 and 6 respectively. Arrange them in increasing order of acidic strength. [2]
- Q.23. Explain the following chemical properties of acids with the help of balanced chemical equations only. [1+1=2]
- When an acid reacts with a metal carbonate.
 - When an acid reacts with a metal bicarbonate.
- Q.24. Bile juice does not have any digestive enzyme but still plays a significant role in the process of digestion. Justify the statement. [2]
- Q.25. In the reaction represented by the following equation : [2]

3. $\text{CuO (s)} + \text{H}_2 \text{(g)} \rightarrow \text{Cu (s)} + \text{H}_2 \text{O}$
1. (i) Name the substance reduced.
 - (ii) Name the reducing agent.
 - (iii) Name the substance oxidized.
2. (iv) Name the oxidizing agent.

OR

When a solution of potassium iodide is added to a solution of lead nitrate in a test tube, a reaction takes place :

- (i) What type of reaction is this ?
- (ii) Write a balanced chemical equation to represent the above reaction.

SECTION - D
(LONG ANSWER TYPE QUESTIONS)

[2+2+1=5]

Q.26.

- (a) To construct a ray diagram we use two rays which are so chosen that it is easy to know their directions after reflection from the mirror. List and draw two such rays and state the path of these rays after reflection in case of concave mirrors.
- b) Use these two rays and draw a ray diagram to locate the image of an object placed between centre of curvature and focus of a concave mirror.
- (c) If a ray of light is incident on a convex mirror directed towards its centre of curvature what will be the path of the reflected ray?

Q.27.

- Draw a diagram of human respiratory system and label the following :
- (i) part where air is filtered by fine hair and mucus
 - (ii) Balloon - like structures where exchange of gases takes place.
 - (iii) part which separates chest cavity from abdominal cavity.
- (b) Why is the rate of breathing in aquatic organisms much faster than in terrestrial organisms?

[5]

$$\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$$