

Practice Paper 1

Class X 2023-24

Science (086)

Time: 3 Hours

Max. Marks: 80

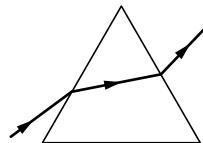
General Instructions:

1. This question paper consists of 39 questions in 5 sections.
 2. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
 3. Section A consists of 20 Objective Type questions carrying 1 mark each.
 4. Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.
 5. Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.
 6. Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.
 7. Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.
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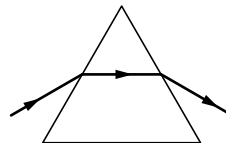
SECTION-A

Select and write one most appropriate option out of the four options given for each of the questions 1 – 20.

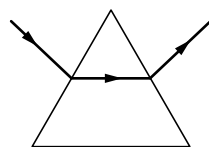
1. In which of the following diagrams is the path of a ray of light passing through a glass prism shown correctly?



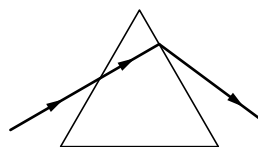
(I)



(II)



(III)

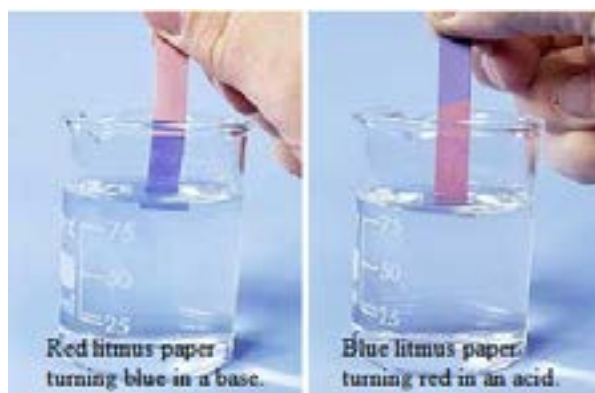


(IV)

- (a) I
- (b) II
- (c) III
- (d) IV

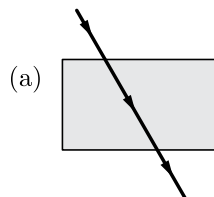
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2. Common salt besides being used in kitchen can also be used as the raw material for making
1. washing soda
 2. bleaching powder
 3. baking soda
 4. slaked lime
- (a) 1 and 2
(b) 1, 2 and 4
(c) 1 and 3
(d) 1, 3 and 4
3. Which is the correct sequence of the components of a reflex arc ?
- (a) Receptors → Muscles → Sensory neuron → Motor neuron → Spinal cord
(b) Receptors → Motor neuron → Spinal cord → Sensory neuron → Muscle
(c) Receptors → Spinal cord → Sensory neuron → Motor neuron → Muscle
(d) Receptors → Sensory neuron → Spinal cord → Motor neuron → Muscle.
4. An aqueous solution turns red litmus solution blue.

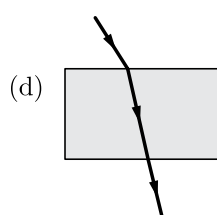
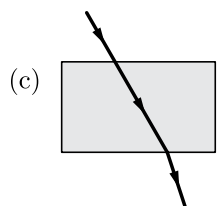
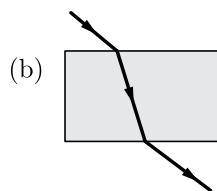


Excess addition of which of the following solution would reverse the change?

- (a) Baking powder
(b) Lime
(c) Ammonium hydroxide solution
(d) Hydrochloric acid
5. The path of a ray of light coming from air passing through a rectangular glass slab traced by four students are shown in figure. Which one of them is correct?



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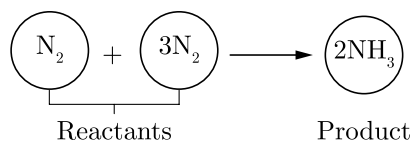


6. The image formed by a concave mirror is observed to be virtual, erect and larger than the object. Where should be the position of the object?
- Between the principal focus and the centre of curvature
 - At the centre of curvature
 - Beyond the centre of curvature
 - Between the pole of the mirror and its principal focus.
7. Which of the following statements are usually correct for carbon compounds? These
- are good conductors of electricity
 - are poor conductors of electricity
 - have strong forces of attraction between their molecules
 - do not have strong forces of attraction between their molecules.
- (i) and (iii)
 - (ii) and (iii)
 - (i) and (iv)
 - (ii) and (iv)
8. Choose the forms in which most plants absorb nitrogen:
- Atmospheric nitrogen
 - Proteins
 - Nitrates and nitrites
 - Urea
- Choose the correct option.
- 1 and 4
 - 3 and 4
 - 1 and 2
 - 2 and 3

9. Which reaction is used in photography?
- (a) $\text{CaO} + \text{H}_2\text{O} \longrightarrow \text{Ca}(\text{OH})_2 + \text{Heat}$
- (b) $2\text{FeSO}_4 \xrightarrow{\text{Heat}} \text{Fe}_2\text{O}_3 + \text{SO}_2 + \text{SO}_3$
- (c) $2\text{Cu} + \text{O}_2 \longrightarrow 2\text{CuO}$
- (d) $2\text{AgBr} \xrightarrow{\text{sunlight}} 2\text{Ag} + \text{Br}$
10. During the process of photosynthesis, absorption of light energy is done by

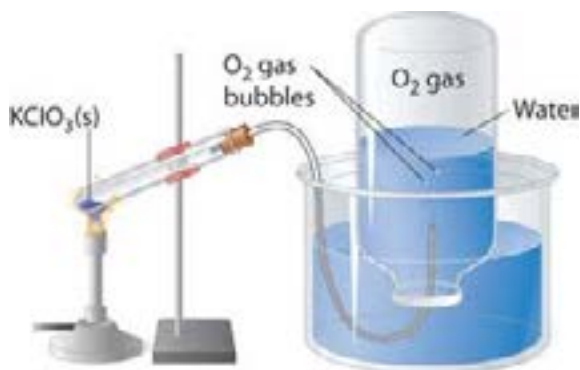


- (a) Leaf
- (b) Midrib
- (c) Vein
- (d) Chlorophyll
11. The correct sequence of organs in the male reproductive system for transport of sperms is
- (a) testis → vas deferens → urethra
- (b) testis → ureter → urethra
- (c) testis → urethra → ureter
- (d) testis → vas deferens → ureter
12. Which of the following is/are correct for a balanced chemical equation?

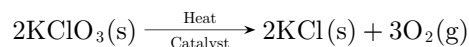


- It is based on law of conservation of mass.
 - The physical states makes the chemical reaction less informative.
- (a) Only 1
- (b) Only 2
- (c) Both 1 and 2
- (d) Neither 1 nor 2

13. Which one of the following metals do not react with cold as well as hot water?
- Na
 - Ca
 - Mg
 - Fe
14. Which among the following statements are true for unisexual flowers?
- They possess both stamen and pistil
 - They possess either stamen or pistil
 - They exhibit cross pollination
 - Unisexual flowers possessing only stamens cannot produce fruits
- (i) and (iv)
 - (ii), (iii) and (iv)
 - (iii) and (iv)
 - (i), (iii) and (iv)
15. Angle of deviation depends on:
- Angle of prism
 - Nature of material of prism
 - Angle of incidence on the prism
 - All of the above
- 16.



The following reaction is used for the preparation of oxygen gas in the laboratory



Which of the following statement(s) is(are) correct about the reaction?

- It is a decomposition reaction and endothermic in nature.
- It is a combination reaction.
- It is a decomposition reaction and accompanied by release of heat.
- It is a photochemical decomposition reaction and exothermic in nature.

Question no. 17 to 20 are Assertion - Reasoning based questions.

17. **Assertion :** Corrosion of iron is commonly known as rusting.
Reason : Corrosion of iron occurs in presence of water and air.
- Both Assertion and Reason are True and Reason is the correct explanation of the Assertion.
 - Both Assertion and Reason are True but Reason is not the Correct explanation of the Assertion.
 - Assertion is True but the Reason is False.
 - Both Assertion and Reason are False.

18. **Assertion :** Cytokinins are present in highest concentration in fruits and seeds.
Reason : Cytokinins are responsible for promoting cell division.
- (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
 - (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
 - (c) Assertion (A) is true but reason (R) is false.
 - (d) Assertion (A) is false but reason (R) is true.
19. **Assertion :** Liver is known as the largest gland of the body.
Reason : It secretes salivary amylase.
- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
 - (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
 - (c) Assertion is true but Reason is false.
 - (d) Assertion is false but Reason is true.
20. **Assertion :** When the length of a wire is doubled, then its resistance also gets doubled.
Reason : The resistance of a wire is directly proportional to its length.
- (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
 - (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
 - (c) Assertion (A) is true but reason (R) is false.
 - (d) Assertion (A) is false but reason (R) is true.

SECTION-B

Question no. 21 to 26 are very short answer questions.

21. A metal compound *A* reacts with dilute sulphuric acid to produce a gas which extinguishes a burning candle. Identify the compound *A* and the gas produced. Write a balanced chemical equation for the reaction if one of the compounds formed in the reaction is sodium sulphate.
- or**
- How does the enamel of the teeth undergo damage due to the eating of chocolates and sweets ? What should be done to prevent it.
22. Differentiate between motor neuron and sensory neuron.
23. Is it correct to say that if fertilization of the egg occurs on a full moon night, the child produced will be a male ? Give reason.
24. Why is DNA copying necessary during reproduction?
25. Name the type of mirror used in a solar furnace. How is high temperature achieved by this device ?
- or**
- What is meant by refractive index ? If the speed of light in a medium is $\frac{2}{3}$ rd of the speed of light in vacuum, find the refractive index of that medium.
26. What will happen to grass-lands if all the grazers/herbivores are removed from there ?

SECTION-C

Question no. 27 to 33 are short answer questions.

27. What is meant by refining of metals? Describe the electrolytic refining of copper with a neat labelled diagram.
28. Name the plant Mendel used for his experiment. What type of progeny was obtained by Mendel in F_1 and F_2 generations when he crossed the tall and short plants? Write the ratio he obtained in F_2 generation plants.
29. Distinguish between the acquired traits and the inherited traits in tabular form, giving one example for each.
- or**
- How did Mendel's experiments show that different traits are inherited independently? Explain.
30. (i) Least distance of distinct vision of a long-sighted person is 40 cm. He wishes to reduce it to 25 cm by using spectacles. Find the power and nature of the lens used by him.
(ii) Draw a ray diagram to show the correction of the defect by using an appropriate lens.
31. The near point of a person suffering from hypermetropia is 75 cm. Calculate the focal length and power of the lens required to enable him to read the newspaper which is kept at 25 cm from the eye.
32. (a) Two conductors A and B of resistances $5\ \Omega$ and $10\ \Omega$ respectively can be arranged in parallel and later on in series. In each arrangement, the total voltage applied across it is 20 volts. In which arrangement will the voltage across A and B be the same and in which case will the current flowing through A and B be the same ?
(b) Calculate the total resistance for each arrangement.

or

A metallic coil, connected to a 220 V supply, has a resistance of 110 ohm (while hot). How long will it take for this coil to heat 1 kg of water from 20°C to 70°C ? Assume that whole of the heat produced by the coil is taken up by water. (Specific heat of water = $4186\ \text{J/kg}^\circ\text{C}$)

33. (i) What is the height of ozone from the equator ?
(ii) Name the rays against which ozone layer provides protection.
(iii) Name one effect of depletion of ozone.

SECTION-D

Question no. 34 to 36 are Long answer questions.

34. What is plaster of paris? How is plaster of paris prepared ? Write equation of the reaction involved. What happens when water is added to plaster of paris? Write an equation to show the reaction between plaster of paris and water.

or

Give suitable reasons for the following statements :

- (a) Rain water conducts electricity but distilled water does not.
(b) We feel burning sensation in the stomach when we overeat.
(c) A tarnished copper vessel regains its shine when rubbed with lemon.
(d) The crystals of washing soda change to white powder on exposure to air.
(e) An aqueous solution of sodium chloride is neutral but an aqueous solution of sodium is basic.
35. Describe the structure of a sieve tube. Name the cells which are present along sieve tubes in the phloem tissue. Draw a labelled diagram of phloem tissue.

or

What is translocation ? Name the cells involved in the transport of food in plants. What are the steps involved in the translocation of food in plants ?

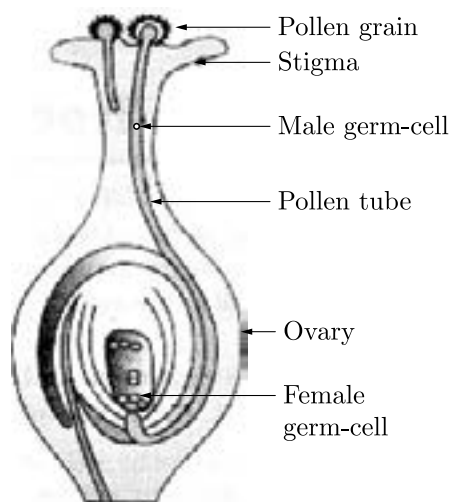
36. (a) What is a solenoid ? Draw the pattern of magnetic field lines around a current carrying solenoid.
 (b) What is the pattern of field lines inside a solenoid? What do they indicate ?
 (c) How is the magnetic field produced in a solenoid used ?

SECTION-E

Question no. 37 to 39 are case-based/data -based questions with 2 to 3 short sub-parts. Internal choice is provided in one of these sub-parts.

37. Corrosion is the phenomenon of deterioration of surface of metal in presence of air and moisture. It is a natural process and in the presence of a moist atmosphere, chemically active metals get corroded. This is oxidation reaction. Rusting is the process where iron corrodes due to exposure to the atmosphere. The main circumstance of corrosion occurs with iron because it is a structural material in construction, bridges, buildings, rail transport, ships, etc. Aluminium is also an important structural metal, but even aluminium undergoes oxidation reactions. However, aluminium doesn't corrode or oxidize as rapidly as its reactivity suggests. An alloy of aluminium or any other metal like magnesium can make aluminium stronger and harder. Copper (Cu) corrodes and forms a basic green carbonate and lead corrodes to form a white lead oxide or carbonate.
- (i) What is rusting?
 (ii) Which two metals do not corrode easily?
 (iii) List two properties of alloys.
- or**
- (iv) What is the effect of corrosion on electrical conductivity ?

38. Carpel is present at the centre of a flower and is the female reproductive part. It is made of three parts. The swollen bottom part is the ovary, the middle elongated part is the style and the terminal part which may be sticky is the stigma. The ovary contains ovules and each ovule has an egg cell. The male germ-cell produced by pollen grain fuses with the female gamete present in the ovule. This fusion of the germ-cells or fertilization gives us the zygote which is capable of growing into a new plant. Thus, the pollen needs to be transferred from the stamen to stigma. If this transfer of pollen occurs in the same flower, it is referred to as self-pollination. On the other hand, if the pollen is transferred from one flower to another, it is known as cross-pollination. This transfer of pollen from one flower to another is achieved by agents like wind, water or animals. After the pollen lands on a suitable stigma, it has to reach the female germ-cells which are in the ovary. For this, a tube grows out of the pollen grain and travels through the style to reach the ovary.



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- (i) What is present at the centre of the flower?
- (ii) How many parts does the carpel have?
- (iii) What do you mean by cross-pollination?

or

- (iv) What do you mean by self-pollination?

39. Convex mirror is used as a rear view mirror in vehicles. Since the image of the object formed is small in size, the field of view is increased. Convex mirror is also used in street lights to diverge light over a large area.



- (i) In driver's mirror, what type of image is formed behind the vehicle ?
- (ii) What can you say about field of view of a convex mirror ?

or

- (iii) A convex mirror is used to form the image of an object. What is the nature of formed image ?

□□□□□□