

**2025
SCIENCE**

Total marks : 80

Time : 3 hours

General instructions:

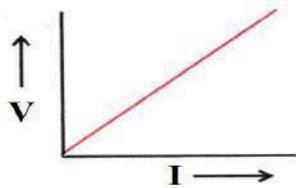
- i) *Approximately 15 minutes is allotted to read the question paper and revise the answers.*
- ii) *The question paper consists of 23 questions in 4 Sections. Marks allocated to every question are indicated against it.*
- iii) *All questions are compulsory in 1 and 2 marks questions (Section A and B).*
- iv) *Internal choice is given in 3 and 5 marks questions (Section C and D). A student has to attempt only one of the alternatives in such questions.*
- v) *General choice is given in 5 marks questions. A student has to attempt only 4 questions from this Section-D.*
- vi) *Alternate questions for the visually impaired students are provided in some questions. **Only the visually impaired students have to attempt such alternate questions.***
- vii) *Write the correct question number in your answer sheet to indicate the option being attempted.*

N.B: *Check to ensure that all pages of the question paper are complete as indicated on the top left side.*

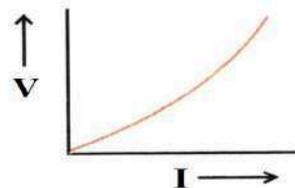
SECTION – A**1. Choose the correct answer from the given alternatives:**

- (i) With the increase in OH^- ion concentration, the pH value will **1**
 - (a) increase
 - (b) decrease
 - (c) remain constant
 - (d) fluctuate
- (ii) The most ductile metal is **1**
 - (a) gold
 - (b) silver
 - (c) copper
 - (d) mercury
- (iii) Which of the following is the correct arrangement of the given four metals in the decreasing order of their reactivity? **1**
 - (a) $\text{Al} > \text{Zn} > \text{Mg} > \text{Fe}$
 - (b) $\text{Mg} > \text{Al} > \text{Zn} > \text{Fe}$
 - (c) $\text{Fe} > \text{Zn} > \text{Al} > \text{Mg}$
 - (d) $\text{Zn} > \text{Fe} > \text{Al} > \text{Mg}$
- (iv) Which of the following is a saturated hydrocarbon? **1**
 - (a) Ethane
 - (b) Ethene
 - (c) Pentene
 - (d) Pentyne
- (v) The number of covalent bonds in C_3H_8 is **1**
 - (a) 6
 - (b) 8
 - (c) 10
 - (d) 12
- (vi) Cramps in our muscles during sudden activity is due to the conversion of **1**
 - (a) pyruvate to ethanol
 - (b) pyruvate to ATP
 - (c) pyruvate to lactic acid
 - (d) glucose to pyruvate

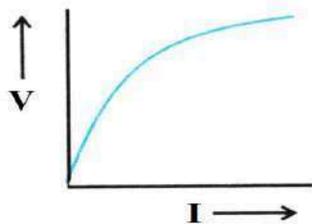
- (vii) Growth in all organs is stimulated by the growth hormone secreted by the 1
(a) pituitary gland (b) adrenal gland
(c) pineal gland (d) hypothalamus
- (viii) The plant that was used by Mendel for his experiments is 1
(a) gram (b) mustard
(c) hibiscus (d) garden pea
- (ix) Which of the following can be inherited from parents to offspring? 1
(a) Driving skill (b) Knowledge
(c) Free earlobes (d) Scar
- (x) An object is placed between F_1 and $2F_1$ of a convex lens, the image will be formed 1
(a) at F_2 (b) at $2F_2$
(c) beyond $2F_2$ (d) between F_2 and $2F_2$
- (xi) The function of iris in the human eye is to 1
(a) control the size of the pupil
(b) adjust the focal length of the eye lens
(c) control the amount of light entering the eye
(d) detect and convert light into electrical signal
- (xii) The V-I graph for a nichrome wire which correctly depicts Ohm's Law is 1



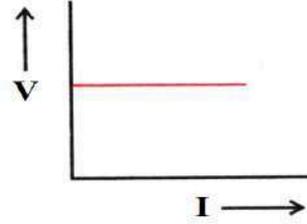
(a)



(b)



(c)



(d)

Alternate question for the visually impaired students:

According to Ohm's law, the potential difference across the ends of a given metallic wire in an electric circuit is (1)

- (a) directly proportional to the time of flow of current
(b) directly proportional to the current flowing through it
(c) inversely proportional to the time of flow of current
(d) inversely proportional to the current flowing through it
- (xiii) If the current flows from North to South in a straight conductor, the direction of the magnetic field line will be 1
(a) clock wise (b) anti-clock wise
(c) south to north (d) north to south

- (xiv) In 1987, an agreement was formulated by the United Nations Environmental Programme (UNEP) to freeze the population of 'X' to prevent depletion of 'Y'. The 'X' and 'Y' referred here are respectively **1**
- (a) ozone and CFC's (b) CFC's and UV rays
(c) CFC's and ozone (d) UV rays and CFC's
- (xv) The phenomenon in which non-biodegradable pesticide get accumulated progressively at each tropic level is known as **1**
- (a) pollution (b) biogenesis
(c) biological magnification (d) biodegradation

SECTION - B

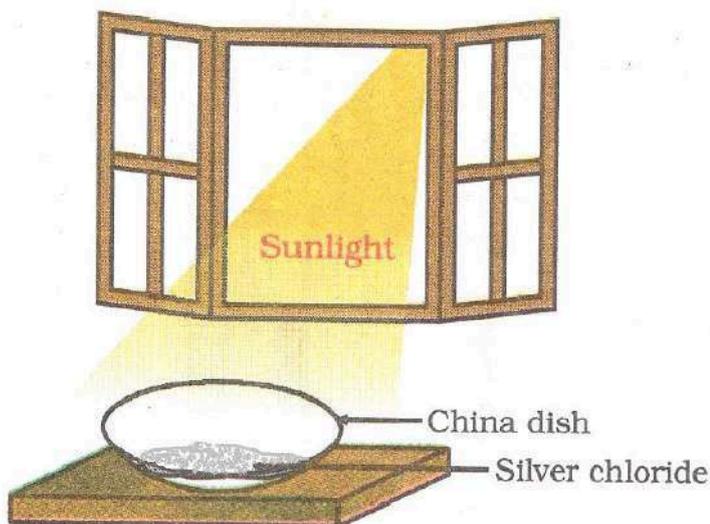
Answer the following questions in about 20-30 words:

2. What is a skeletal chemical equation? Why is it necessary to balance chemical equations? **2**
3. Write two advantages of using detergents as cleansing agents over soaps. **2**
4. What are the ways in which water is transported in plants? **2**
5. Give two limitations of electrical impulse in transmission of information in animal body. **2**
6. What happens to the lining of uterus:
(i) after fertilization, before receiving the growing embryo?
(ii) if no fertilization occurs? **2**
7. State Fleming's left hand rule. **2**

SECTION - C

Answer the following questions in about 40-60 words:

8. a. In the experimental set up shown below, white silver chloride is taken in a china dish and kept in sunlight for some time.

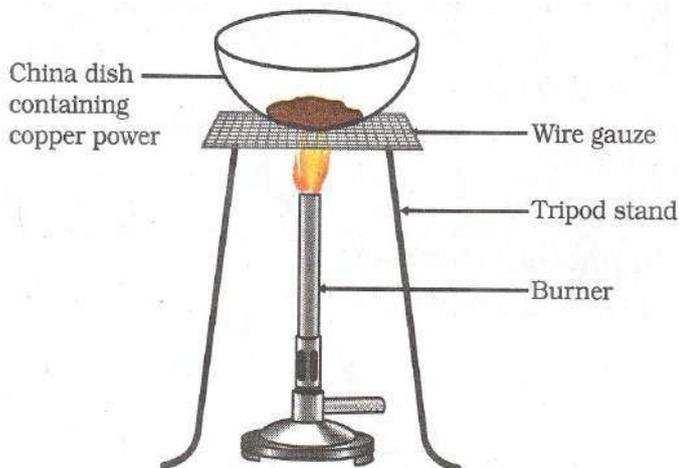


Answer the following questions based on the experiment above:

- (i) What colour change is observed in the silver chloride? 1+2=3
- (ii) What is the type of reaction that has taken place? Give reason.

Or

- b.** In the given experimental set up, when brown copper powder is heated, the surface of the copper powder becomes black.



Answer the following questions based on the experiment above:

- (i) Identify the type of reaction. Give reason.
- (ii) When hydrogen gas is passed over the black copper powder, what will be observed? (2+1=3)

Alternate question for the visually impaired students:

What is meant by rancidity? Mention two techniques to prevent rancidity. (1+2=3)

9. **a.** A white solid mass is seen fixed on the fractured bone by doctors.
- (i) What is the name of the white solid mass?
 - (ii) Write its chemical formula.
 - (iii) Give one more use of the white solid mass. 1×3=3

Or

- b.** Write the chemical equation to show how bleaching powder is produced. Give two uses of bleaching powder. (1+2=3)

10. **a.** What is a homologous series? Write any two characteristic features of homologous series.

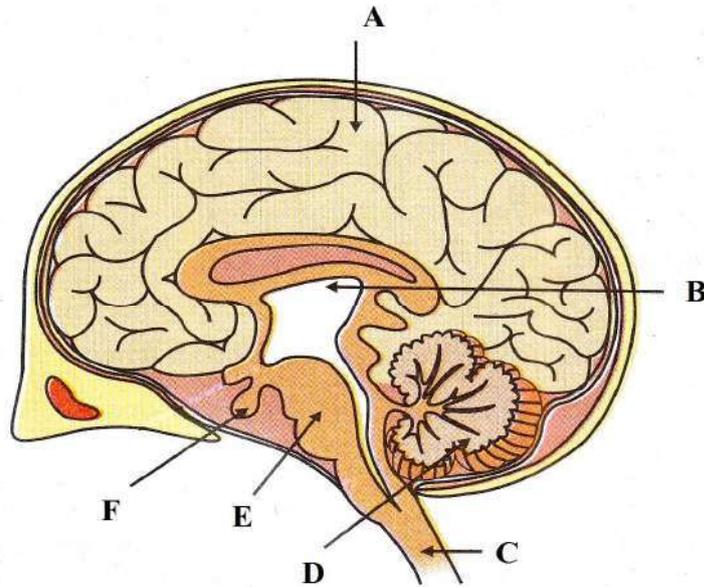
Or

1+2=3

- b.** What is esterification reaction? Give two uses of esters.

11. Label the indicated parts of the human brain.

$6 \times \frac{1}{2} = 3$



Alternate question for the visually impaired students:

Write any one function each of the fore-brain, mid-brain and hind-brain.

($1 \times 3 = 3$)

12. Explain how the sex of a child is determined in human beings.

3

13. Bokato went on a hunting trip to his village during his summer vacation. He tried to make fire on a hot day by using a lens on a paper.

(i) Name the type of lens he used and why?

(ii) Give one more application of this type of lens used in our daily life.

$2 + 1 = 3$

14. a. An object 5cm in length is placed at 20cm in front of a convex mirror of radius of curvature 30cm. Find the position of the image, its nature and size.

Or

3

b. A concave lens has focal length of 15cm. At what distance should the object be placed so that it forms an image at 10cm from the lens? Also, find the magnification produced by the lens.

Alternate question for the visually impaired students:

Define reflection of light. State the two laws of reflection of light.

($1 + 2 = 3$)

15. Explain the following:

(i) Why is tungsten used almost exclusively for filament of electric lamps?

(ii) Why are the conductors of electric heating devices, such as bread-toasters and electric irons, made of an alloy rather than a pure metal?

(iii) Why are copper and aluminium wires usually employed for electricity transmission?

$1 \times 3 = 3$

16. a. In Lithrongla's grandmother's house, two lamps, one rated 100W at 220V and the other 60W at 220V are connected in parallel to the electric main supply. What current is drawn from the line if voltage is 220V?

Or

3

- b. The electric refrigerator in Asen's house, rated 400W operates for 8 hours/day. What is the cost of the energy to operate it for 30 days at ₹5.60 per kWh?

Alternate question for the visually impaired students:

According to Joule's law of heating, what are the three factors on which the heat produced in a resistor depends? (3)

17. What is earth wire? Why is it necessary to earth metallic appliances? **1+2=3**
18. Hornbill Festival of Nagaland is a major event which attracts not only domestic tourists but also international tourists. Throngs of people flood the state during this festival time. Reports have shown that it has raised the economy of the state, at the same time it has contributed to environmental problems. What three suggestions would you make to the Government of Nagaland to solve the environmental problems? **1×3=3**

SECTION - D

Answer any 4 questions from the following questions (19 to 23) in about 70-100 words:

19. With the help of a neat and labelled diagram, explain the electrolytic refining of copper. **2+3=5**

Alternate question for the visually impaired students:

What are ionic compounds? Give four properties of ionic compounds. (1+4=5)

20. a. Draw a labelled diagram of the human alimentary canal and explain ingestion of food in mouth and digestion in stomach in human beings.

Or

2+3=5

- b. Draw a labelled structure of the human heart and explain the flow of blood through the heart.

Alternate question for the visually impaired students:

Explain the process of nutrition in human beings. (5)

21. Explain any five modes of reproduction by single organisms. **1×5=5**

22. John is studying in class X. One day, the science teacher took John’s class to see the State Museum in Kohima. The students saw three mirrors which gave different images of their body-

- Mirror A gave an enlarged size of the body.
- Mirror B gave the same size of the body.
- Mirror C gave a diminished size of the body.

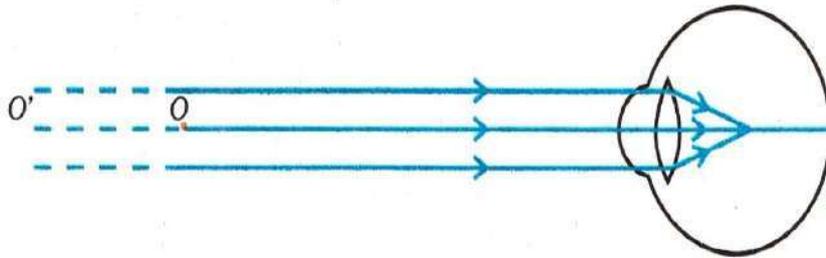
Based on the above observations, answer the following:

- (i) What type of mirror is Mirror A?
- (ii) What type of mirror is Mirror B?
- (iii) What type of mirror is Mirror C?
- (iv) Which among the three mirrors is also used as a rear view mirror for drivers in vehicles?
- (v) Which among the three mirrors is also used by dentists? 1×5=5

23. a. Explain dispersion of white light by a glass prism with the help of a diagram. 3+2=5

Or

b. Given below is the ray diagram of a defect of vision in human beings.



- (i) Identify the type of defect of vision in the above figure.
- (ii) Write two causes of this defect of vision.
- (iii) What type of lens is used for correction of this defect?
- (iv) Draw a ray diagram to show how this defect is corrected by using the suitable type of lens. (1+2+1+1=5)

Alternate question for the visually impaired students:

Write one cause of presbyopia. What are its two defects and how can it be corrected? (1+2+2=5)
