

Model Question Paper for Class X  
Science Theory

Time: 3 hours

Max. Marks: 80

General Instructions:

- The question paper has four sections A, B, C and D. There are 36 questions in the question paper and all questions are compulsory.
- Section-A (Q.1 to Q.20)- all questions and parts thereof are of one mark each. These questions contain multiple choice questions, very short answer questions and assertion – reason type questions. Answer to these should be given in one word or one sentence.
- Section – B (Q.21 to Q.26) are short answer type questions, carrying 2 marks each.
- Section – C (Q.27 to Q.33) carrying 3 marks each.
- Section – D (Q.34 to Q.36) are long answer type questions, carrying 5 marks each.
- There is no overall choice. However internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
- Wherever necessary, neat and properly labelled diagram should be drawn.

Section – A

- Q.1: Object AB is placed at the centre of curvature of a concave mirror. The inverted image of the object will be formed at the centre of curvature. Draw a ray diagram to show this case. 1
- Q.2: What is the value of refractive index for water and a crown glass? 1
- Q.3: What is dioptre?  
Or  
Give any one point of difference between a concave lens and a convex lens. 1
- Q.4: A person is wearing spectacles with a concave lens of suitable focal length. What kind of defect of vision is he having?  
a. Myopia  
b. Hypermetropia  
c. Presbyopia  
d. Both b & c 1
- Q.5: In electric fittings we mostly use copper wires. Why? 1
- Q.6: In presence of sunlight, silver chloride decomposes to give silver and chlorine gas. Write a balanced chemical equation for it. 1
- Q.7: Which of the following processes involve chemical reactions?  
a. Storing of oxygen gas under pressure in a gas cylinder  
b. Liquefaction of air  
c. Keeping petrol in a china dish in the open  
d. Heating copper wire in presence of air at high temperature 1
- Q.8: Draw electron dot structure for ammonia molecule.  
Or  
Write the structural formula of Cyclohexane. 1
- Q.9: Arrange the following metals in the order of their increasing reactivity.  
Copper, Aluminium, Silver, Zinc, Iron 1
- Q.10: Which one of the following four metals would be displaced from the solution of its salts by other three metals?  
a. Magnesium  
b. Silver  
c. Zinc 1



d. Copper

Q.11: Name any four common waste disposal methods. 1

Q.12: Draw a flow chart depicting a reflex action. 1

Q.13: What is a universal indicator? 1

1

For question number 14 to 16, two statements ( Assertion A and Reason R) are given. Select the correct answer to these questions from codes a, b, c and d as given below.

a. Both A and R are true, and R is correct explanation of the assertion

b. Both A and R are true, but R is not the correct explanation of the assertion.

c. A is true but R is false

d. A is false but R is true

Q.14:

Assertion: When zinc is dipped in copper sulphate solution, reddish brown particles are found to settle at the bottom.

Reason: Zinc displaces copper to form zinc sulphate and reddish brown particles of copper settle at the bottom of the beaker. 1

Q.15:

Assertion: Pea plant having violet flowers is crossed with a pea plant having white flowers. All the flowers in the first generation are violet.

Reason: White colour gene is not passed on to next generation. 1

Q.16:

Assertion: Food chain is responsible for the entry of harmful chemicals in our bodies.

Reason: The length and complexity of food chain vary greatly. 1

Q. No. 17 to 20 contain 5 sub-parts each. You are expected to answer any four sub-parts in these questions.

Q.17: Read the following and answer any four questions.

Around every current carrying conductor, there is a magnetic field. The direction of magnetic field depends on the direction of electric current in a conductor. 1 × 4

- i. Which among the following is used to find out the direction of magnetic field line around a current carrying straight conductor.
  - a. Ampere's swimming rule
  - b. Fleming's right hand thumb rule
  - c. Fleming's left hand rule
  - d. Faraday's rule
- ii. Magnitude of magnetic field around a current carrying conductor at any point is
  - a. directly proportional to the intensity of electric current
  - b. inversely proportional to the distance (r) from the conductor
  - c. directly proportional to the distance (r) from the conductor
  - d. both a & b
- iii. To find out the direction of the deflection of the compass needle due to magnetic field of a current carrying conductor, we use
  - a. Ampere's swimming rule
  - b. Fleming's right hand thumb rule
  - c. Fleming's left hand rule
  - d. Faraday's rule
- iv. Current carrying conductor is a
  - a. Permanent magnet
  - b. Temporary magnet
  - c. Natural magnet



- d. None of the above
- v. Which among the following produces strong magnetic field?
  - a. Permanent magnet
  - b. Natural magnet
  - c. Bar magnet
  - d. Electromagnet

Q.18: Read the following and answer any four questions.

When we move along the period or down the group of a periodic table, the chemical and physical properties of elements show variation. 1 × 4

- i. The distance between the centre of the nucleus and the outermost shell is called atomic size. On moving from left to right in a period of the periodic table, atomic size of the elements
  - a. Increases
  - b. decreases
  - c. remains same
  - d. first increases then decreases
- ii. On moving down the group in a periodic table, metallic character of elements
  - a. increases
  - b. decreases
  - c. remains same
  - d. first decreases then increase
- iii. F, Cl, Br and I belong to halogen family. All of them are electronegative. Which among these has highest electronegativity?
  - a. F
  - b. Cl
  - c. Br
  - d. I
- iv. When we go down the group in a periodic table, a new shell of electrons is added at each succeeding element. So what happens to the valency of elements down the group?
  - a. It increases down the group
  - b. It decreases down the group
  - c. It increases up to 4 then decreases to zero down the group
  - d. It remains same down the group
- v. When we go down the group in a periodic table,
  - a. Only physical properties show variation
  - b. only chemical properties show variation
  - c. both physical and chemical properties show variation
  - d. properties remain same

Q.19: Read the following and answer any four questions.

Acids are the substances which contain hydrogen and which when dissolved in water give hydrogen ions ( $H^+$ ) in the solution. And bases are the substances which when dissolved in water gives hydroxide ( $OH^-$ ) ions in the solution. pH is the number which represents the acidic or basic nature of the solution. 1 × 4

- i. A substance having a pH value of 12 is a
  - a. strong acid
  - b. strong base
  - c. weak acid



- d. weak base
- ii. pH value of weak acids ranges from
  - a. 0 to 3
  - b. 7 to 10
  - c. 5 to 7
  - d. 12 to 14
- iii. Which among the following is a weak acid
  - a. Hydrochloric acid
  - b. Acetic acid
  - c. Sulphuric acid
  - d. Nitric acid
- iv. The reaction between  $H^+$  ions given by the acid with the  $OH^-$  ions given by the base to form water, is called
  - a. Crystallisation
  - b. Condensation
  - c. Neutralization
  - d. both b & c
- v. Strong bases when dissolved in water
  - a. dissociate completely into ions
  - b. give large amounts of  $OH^-$  ions in the solution
  - c. dissociate incompletely and give less number of ions
  - d. both a & b

Q.20. Read the following and answer any four questions.

Conservation means the controlled utilization of natural resources and their management in such a way to provide sustained availability, prevention of wastage, recycling and substitution. 1 × 4

- i. Which factor is mainly responsible for increase in demand of natural resources?
  - a. Increased human population
  - b. use of biodegradable chemicals
  - c. scientific advancement
  - d. environmental pollution
- ii. The three R's that will help us to conserve natural resources for longer term are
  - a. reduce, regenerate, reuse
  - b. reuse, regenerate, recycle
  - c. reduce, recycle, reuse
  - d. reduce, reuse, redistribute
- iii. The important message conveyed by the "Chipko Movement" is
  - a. to involve the community in forest conservation effort
  - b. to ignore the community in forest conservation effort
  - c. to cut down forest trees for developmental activities
  - d. government agencies have right to order destruction of forest trees
- iv. Select the incorrect statement
  - a. Economic development is linked to environmental conservation
  - b. Sustainable development encourages development for current generation and conservation of resources for future generation
  - c. Sustainable development does not consider the view points of stakeholders
  - d. Sustainable development is a long planned and persistent development
- v. Which among the following activities is eco-friendly?



- a. Using polythene bags for shopping
- b. Using dyes for colouring clothes
- c. Using windmills to generate power for irrigation
- d. Using car for transportation

**Section – B**

Q.21: State any two practices which can help in the protection of our environment.

OR

What do you mean by Global warming?

Q.22: What is the basic cause of atmospheric refraction? 2

Q.23: Mention any two functions of human ovary. 2

OR

What is the importance of DNA copying in reproduction? 2

Q.24: During the process of dispersion you have observed that the white light on passing through a glass prism dispersed into its constituent colours. During this dispersion, what is the reason for the violet light to bend more than the red light? 2

Q.25: Draw a circuit diagram consisting of a battery of two cells of 2V each, three resistors having the resistance of 2 ohm, 3 ohm and 5 ohm respectively and a key. All are connected in series. 2

Q.26: What is the function of blood capillaries surrounding the nephron? 2

**Section – C**

Q.27: What are the advantages of sexual reproduction over asexual reproduction?

OR

Differentiate between self pollination and cross pollination. 3

Q.28: Show XX-XY type of sex determination in human beings through a diagram. 3

Q.29: Give any three applications of heating effect of electric current. 3

Q.30: Give advantages of hydel power plants over thermal power plants. 3

Q.31: When we keep silver bromide in sunlight for some time, it is observed that yellow silver bromide turns grey. What type of chemical reaction is this? Write down a balanced chemical equation for the said reaction. 3

Q.32: Describe briefly the electrolytic refining of copper. 3

Q.33: What do you mean by apical dominance? Name the hormone that controls it. 3

**Section – D**

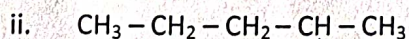
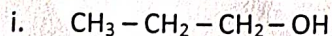
Q.34: With the help of a ray diagram, explain the following terms:

- i. Principal focus of a concave mirror
- ii. Principal focus of a convex mirror
- iii. Centre of curvature

OR

The focal length of a concave lens is 20cm. At what distance from the lens a 5cm tall object be placed so that it will form an image at 15 cm from the lens? Also calculate the size of the image formed. 5

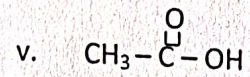
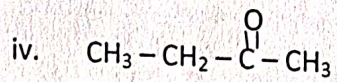
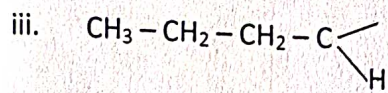
Q.35: Write the IUPAC names for the following compounds:



|  
Br



O



OR

Explain the following with examples:

- i. Addition reactions
- ii. Combustion reactions
- iii. Substitution reactions

Q.36: What is heterotrophic nutrition? Explain different types of heterotrophic nutrition.

5

OR

Describe the process of transportation of water and food in plants.

5



Objectives	Knowledge					Understanding					Application					Skill					Total Marks	
	LA	SA3	SA2	VSA	MCQ	LA	SA3	SA2	VSA	MCQ	LA	SA3	SA2	VSA	MCQ	LA	SA3	SA2	VSA	MCQ		
Unit																			1(1)			8
Light	5(1)			1(1)					1(1)													5
Human Eye & the colourfull World			2(1)						1(1)									2(1)				6
Electricity									1(1)						3(1)							4
Magnetic effects of electric current																			1(4)			3
Sources of energy		3(1)																				5
Chemical reactions & equations									1(2)						3(1)							4
Periodic classification of elements									1(4)												1(1)	6
Carbon & its compounds	5(1)																				1(1)	6
Metals & Non-metals		3(1)							1(1)												1(4)	5
Acids, Basis & Salts									1(1)													7
Life processes	5(1)							2(1)														4
Control & Coordination		3(1)																			1(1)	5
How do organisms reproduce		3(1)	2(1)																			4
Heridity & Genetics							3(1)														1(1)	4
Our Environment				1(2)				2(1)														4
Management of Natural resources									1(4)													4
Sub-Total	15(3)	12(4)	4(2)	3(3)			3(1)	4(2)	15(15)			6(2)	2(1)	10(10)				2(1)	4(4)			80
Total			34					22					18					6				80