

## SAMPLE PAPER 1 (2017-18)

**SUBJECT: SCIENCE**  
**CLASS : X**

**MAX. MARKS : 80**  
**DURATION : 3 HRS**

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### General Instructions:

1. All questions are compulsory.
  2. The question paper comprises of **two Sections, A and B**. You are to attempt both the sections.
  3. All questions of **Section-A** and **Section-B** are to be attempted separately.
  4. There is an internal choice in three questions of three marks each, two question of five marks and one question of Practical Based Question.
  5. Question number **1 to 2** in **Section-A** are **one mark** question. These are to be answered in **one word** or in **one sentence**.
  6. Question numbers **3 to 5** in **Section-A** are **two marks** questions. These are to be answered in about **30 words** each.
  7. Question numbers **6 to 15** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each.
  8. Question numbers **16 to 21** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
  9. Question numbers **22 to 27** in **Section-B** are questions based on practical skills and are **two marks** questions.
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### SECTION – A

1. Name the floral parts of a plant that develop into (i) Fruit (ii) Seeds
2. Why is the rate of breathing in aquatic organisms much faster than in terrestrial organisms?
3. Choose from the following:  ${}_6\text{C}$ ,  ${}_8\text{O}$ ,  ${}_{10}\text{Ne}$ ,  ${}_{11}\text{Na}$ ,  ${}_{14}\text{Si}$ 
  - a) Elements that should be in the same period.
  - b) Elements that should be in the same group.State reason for your selection in each case.
4. An object is placed at a distance of 30 cm in front of a convex mirror of focal length 15 cm. Write four characteristics of the image formed by the mirror.
5. What is windmill? State the energy conversion taking place in the working of a windmill.
6. In the electrolysis of water,
  - a) Name the gas collected at anode and cathode
  - b) Why is the volume of gas collected at one electrode double than the other?
  - c) What would happen if dil  $\text{H}_2\text{SO}_4$  is not added to water?
7. Differentiate between the arrangement of elements in Mendeleev's periodic table and Modern periodic table.
8. Rohit focused the image of a candle flame on a white screen using a convex lens. He noted down the position of the candle, screen and lens as under :  
Position of candle = 26.0 cm  
Position of convex lens = 50.0 cm  
Position of screen = 74.0 cm
  - i) What is the focal length of the convex lens?
  - ii) Where will the image be formed if he shifts the candle towards the lens at a position of 38 cm?
  - iii) Draw a ray diagram to show the formation of the image in case (ii) as said above?

9. Explain the ways in which glucose is broken down in absence of oxygen.

**OR**

List three differences between arteries and veins.

10. Why are fossils considered important in the study of evolution? Explain two ways by which age of fossils can be estimated.

11. Our government launches campaigns to provide information about AIDS prevention, testing and treatment by putting posters, conducting radio shows and using other agencies of advertisements.

a) To which category of diseases AIDS belong? Name its causative organism.

b) Which kind of value is government trying to develop in the citizens by conducting the above kind of programs.

12. How do Mendel's experiments show that traits may be dominant or recessive?

13. "pH has a great importance in our daily life" explain by giving three examples.

**OR**

A compound which is prepared from gypsum has the property of hardening when mixed with a proper quantity of water. Identify the compound and write its chemical formula. Write the chemical equation for its preparation. Mention any one use of the compound.

14. Name the electric device that converts mechanical energy into electrical energy. Draw the labelled diagram and explain the principle involved in this device.

**OR**

i) What is the function of earth wire in electrical instruments?

ii) Explain what is short circuiting an electric supply.

iii) What is the usual current rating of the fuse wire in the line to feed (a) Lights and fans? (b) Appliances of 2kW or more power?

15. Draw a circuit diagram of an electric circuit containing a cell, a key, an ammeter, a resistor of  $4\Omega$  in series with a combination of two resistors ( $8\Omega$  each) in parallel and a voltmeter across parallel combination. Each of them dissipate maximum energy and can withstand a maximum power of 16W without melting. Find the maximum current that can flow through the three resistors.

16. A student fixes a sheet of white paper on a drawing board. He place a bar magnet at the centre of it. He sprinkles some iron filings uniformly around the bar magnet. Then he taps the board gently and observes that the iron filings arrange themselves in a particular pattern.

a) Why do the iron filings arrange in a pattern?

b) What is indicated by the crowding of iron filings at the end of the magnet?

c) What do the lines along which the iron filings align represent?

d) Draw a neat diagram to show the magnetic field lines around a bar magnet.

e) Write any two properties of magnetic field lines.

17. a) What is a reflex arc? Draw a neat labelled diagram of the components in a reflex arc.

b) Why do impulses flow only in one direction in a reflex arc?

18. a) Explain the following terms used in relation to defects in vision and correction provided by them:

(i) Myopia (ii) Bifocal lenses (iii) Far-sightedness.

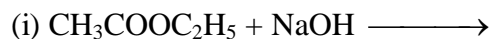
b) Why is the normal eye unable to focus on an object placed within 10 cm from the eye?

19. Soaps and detergents are both types of salts. State the difference between the two. Write the mechanism of the cleansing action of soaps. Why do soaps not form lather (foam) with hard water? Mention any two problems that arise due to the use of detergents instead of soaps.

**OR**

a) Two carbon compounds X and Y have the molecular formula  $C_4H_8$  and  $C_5H_{12}$  respectively. Which one of these is most likely to show addition reaction? Justify your answer. Also give the chemical equation to explain the process of addition in this case.

b) Complete the following chemical equations:



20. Give reasons for the following:

a) Silver and copper lose their shine when they are exposed to air. Name the substance formed on their surface in each case.

b) Tarnished copper vessels are cleaned with tamarind juice.

c) Aluminium is more reactive than iron yet there is less corrosion of aluminium as compared to iron when both are exposed to air.

21. a) What is sustainable management? Why is reuse considered better in comparison to recycle?

b) Management of forest and wild life resources is a very challenging task. Why? Give any two reasons.

c) Write the harmful effects of using plastic bags on the environment. Suggest alternatives to plastic bags.

**OR**

You have been selected to talk on 'ozone layer and its protection' in the school assembly on 'Environment Day.'

a) Define Ozone hole.

b) Why should ozone layer be protected to save the environment?

c) List any two ways that you would stress in your talk to bring in awareness amongst your fellow friends that would also help in protection of ozone layer as well as the environment.

## **SECTION – B**

22. The values of current I flowing in a given resistor for the corresponding values of potential difference V across the resistor are given below:

<b>I(ampere)</b>	0.5	1.0	2.0	3.0	4.0
<b>V(volt)</b>	1.6	3.4	6.7	10.2	13.2

Plot a graph between V and I and calculate the resistance of the resistor.

**OR**

In a given ammeter, a student sees that needle indicates 17 divisions in ammeter while performing an experiment to verify Ohm's law. If ammeter has 10 divisions between 0 and 0.5A, then what is the value corresponding to 17 divisions?

23. Draw a path of light ray passing through a prism. Label angle of incidence and angle of deviation in the ray diagram.

24. A student detected the pH four unknown solutions A, B, C and D as follows: 11, 5, 7 and 2. Predict the nature of the solution.

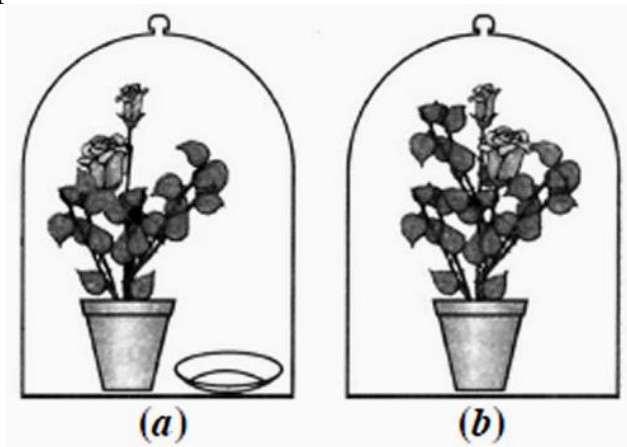
25. A student observed a permanent slide showing asexual reproduction in yeast. Draw diagrams of the observations he must have made from the slide. Name the process also.

26. Riya performs two set of experiments to study the length of the foam formed which are as follows:

Set I: she takes 10 ml of distilled water in test tube “A” and adds 5-6 drops of liquid soap in it and shakes the test tube vigorously.

Set II: she takes 10 ml of distilled water in a test tube “A” and adds 5-6 drops of liquid soap with half spoonful of  $\text{CaSO}_4$  in it and shakes the test tube. Write your observation and reason.

27. Given below is the experimental set-up to establish that one of the atmospheric gases is essential for photosynthesis in plants.



(a) Name the atmospheric gas which is essential for photosynthesis.

(b) What is kept in watch-glass in figure ‘a’ and why?