



**DELHI PUBLIC SCHOOL:: SURAT**  
**SCIENCE & TECHNOLOGY**

Roll No: 

Class: X

Marks: 80

Time Allowed: 3 hours

**General Instructions:**

- (i) The question paper comprises of **two Sections, A and B**. You are to attempt all the sections.
- (ii) **All** questions are **compulsory**, however few questions have internal choice.
- (iii) **All** questions of **Section-A and Section-B** are to be attempted separately.
- (iv) Question numbers **1 to 2** in **Section-A** are **one mark** questions. These are to be answered in **one word** or in **one sentence**.
- (v) Question numbers **3 to 5** in **Section-A** are **two marks** questions. These are to be answered in about **30 words** each.
- (vi) Question numbers **6 to 15** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each.
- (vii) Question numbers **16 to 21** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
- (viii) Question numbers **22 to 27** in **Section-B** are **two marks** questions based on practical skills. These are to be answered in about **30 words** each.

**Section- A**

1. What is the basic event in process of reproduction? [1]
2. State two functions of bile juice. [1]
3. The elements of second period of modern periodic table are given below: [2]  
Li, Be, B, C, N, O, F  
a) Give reason to explain why atomic radii decreases from Li to F.  
b) Why He having 2 valence electrons is not placed in group along with Be, Mg, Ca?
4. a) The magnification produced by a plane mirror is +1. What does it mean? [2]  
b) What is the nature of image formed by a concave mirror if the magnification produced by the mirror is -0.75 ?
5. What are advantages and disadvantages of using a solar cooker? [2]

6. Rohit placed a pencil perpendicular to principal axis in front of a converging mirror of focal length 30 cm. The image formed is twice the size of the pencil. Calculate the distance of the object from the mirror. [3]

7. How many electrons per second pass through given point in a wire carrying 2 A? [3]

8. a) Name the reducing agent in following reaction: [3]



b) Balance the above chemical reaction.

c)  $\text{CaCO}_3$  undergoes decomposition on heating giving a solid and a gas. What is color of the solid product and test to determine the gas evolved?

9. a) X and Y have similar properties and obey Newland's law of octaves. How many elements are there in between X and Y? Give one reason for rejecting the law of octaves? [3]

b) Why there is no fixed position of isotopes of an element in Mendeleev's periodic table?

c) An element X from second group of modern periodic table combines with an element Y from seventeenth group. What will be the molecular formula of the resultant compound?

10. Define residual volume of air. How are lungs designed in human being to maximize the area for exchange of gases? [3]

OR

Differentiate circulation of blood in fish to that of the human being.

11. How do Mendel's experiments show that traits are inherited independently? [3]

12. A coil made of insulated copper wire is connected to a galvanometer. What will happen to the deflection of the galvanometer if bar magnet is pushed into the coil and then pulled out of it. Give reason for your answer and the phenomenon involved. [3]

OR

a) What are magnetic field lines? How is magnetic field at point at a point determined?

b) List three properties of magnetic field lines.

13. a) During summer season, a milkman usually adds a very small amount of baking soda to fresh milk. Why? [3]

b) Cake or bread swells on adding Baking soda. What are the components of baking soda?

Give the chemical reaction involved in swelling of bread due to baking soda.

OR

a) Show reactions to prove that zinc oxide is amphoteric in nature.

b) What compound is formed when  $\text{Cl}_2$  gas obtained from electrolysis of brine is passed from dry slaked lime? Give one use of this compound?

c) What are alkalis? Give an example.

14. Explain the importance of fossils in deciding evolutionary relationships. [3]

15. The government of India has introduced the scheme shown in the picture.[3]



- a) Write your view in the above context.  
b) The government is trying to inculcate what values amongst the citizens?  
c) What is our responsibility to contribute for the growth of above situation?
16. A 14 year old student is not able to see clearly the questions written on the black board placed at a distance of 5 m from him. [5]  
a) Name the defect of vision he is suffering from.  
b) With the help of a labeled ray diagram show how this defect can be corrected.  
c) Name the type of lens used to correct this defect.
17. a) An ore on treatment with dil. HCl produces brisk effervescence. What type of ore is this and what steps will be required to obtain metal from enriched ore? [5]  
b) Copper coin is kept immersed in silver nitrate solution for some time. Write the reaction that may occur.  
c) A green layer is gradually formed on a copper tap in the bathroom over a period of time. What is the molecular formula of this green substance?  
d) Aluminium is more reactive than iron yet there occurs more corrosion in iron than in Aluminium when exposed to air. Explain the reason.
18. a) Draw a neat diagram of reflex arc. What is the role of brain in reflex action? [5]  
b) How does our body respond when adrenaline is secreted into the blood?
19. List four important features of domestic electric circuit. Draw a diagram of common domestic circuit showing live, neutral and earth wires. [5]
20. a) Name the chemical compound which on heating with conc. Sulphuric acid gives ethene and water. [5]  
b) What is the catalyst commonly used for hydrogenation of fats from oil?  
c) Give a difference between chemical composition of soaps and detergents?  
d) Give reaction of alkaline hydrolysis of an ester?  
e) Write the IUPAC name of  $\text{CH}_3\text{COOC}_2\text{H}_5$ .

OR

- a) Show the reaction of ethanol:
- (i) when heated in presence of acidified or alkaline oxidising agent?
- (ii) with Ethanoic acid.
- b) Write the IUPAC name of each of the products in the above reactions.
- c) What is the general formula of Alkene and Alkyne?
- d) What is denatured alcohol?

21. a) Suggest three ways to maintain a balance between environment and development to survive. [5]

b) What is water harvesting? Name any two water harvesting structures in India.

OR

a) Give reasons:

(i) Energy flow is unidirectional.

(ii) Vegetables and fruits or meat contain pesticide residue, which cannot always be removed by washing?

b) How is ozone layer getting depleted?

c) Give any two methods to reduce the problem of waste disposal.

### Section- B

22. a) What is "scum"? [2]

b) What chemicals are present in hard water?

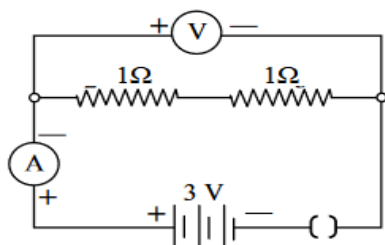
23. a) Ethanoic acid gets ionized when added in water. Give the reaction. [2]

b) A student performed pH test with conc. HCl, then diluted the acid and did the pH test again. What change will he observe in the pH value before and after dilution?

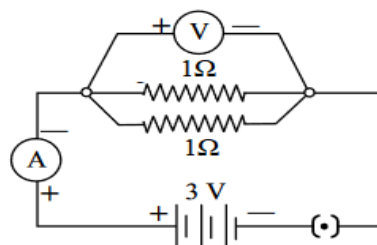
24. Why do we use safranin and glycerin to prepare a slide to see stomata in a leaf peel? [2]

25. Draw various stages of binary fission in Amoeba. [2]

26. For the circuits A and B shown below, [2]



**A**



**B**

a) Write the values for voltmeter readings in each cases.

b) Write the value of electric current passing through both resistances when connected in parallel and series.

OR

Student performs Ohm's law experiment to establish relation between voltage and electric current. What should be the nature of graph obtained when plotted for  $V$  (V) versus  $I$  (A)? Correlate the slope for the line joining points on graph with physical quantity.

27. In an experiment, the image of a distant object formed by a concave mirror is obtained on a screen. List apparatus and materials required to perform this experiment. Also list procedure for the following experiment. [2]

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