

**BHARATIYA VIDYA BHAVAN'S V.M.PUBLIC SCHOOL, VADODARA**  
**SESSION 2017-18**  
**Sample paper-6**

**Class: X**  
**Subject : Science**

**Max Marks: 70**  
**Time Allotted: 3 hrs**

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**SECTION - A**

1. A current of 0.5A is drawn by a filament of electric bulb for 10 min. Find the amount of electric charge that flows through the circuit. (1)
2. In which direction a ray of light bend if it goes from water to glass? (1)
3. Give the characteristic test for the following gases: (2)  
(a) Hydrogen (b) Carbon dioxide
4. What is dispersion? What is the cause of dispersion? (2)
5. List two advantages of vegetative reproduction. (2)
6. Define refractive index. A pencil when dipped in water in a glass tumbler appears to be bent at the interface of air and water. Will the pencil appear to be bent to the same extent, if instead of water we use liquids like, kerosene or turpentine? Support your answer with reason. (3)
7. An electric iron has a rating of 750W; 200V. Calculate (3)  
(a) the current required  
(b) the resistance of its heating element  
(c) energy consumed by the iron in 2 h.
8. (a) Give the function of the earth wire in electrical instruments. Why is it necessary to Earth the metallic electric appliances?  
(b) What are the harmful effects of overloading in an electric supply? When does it occur?  
(c) What is the importance of fuse in electric circuit? (3)
9. Why do covalent molecules have definite shapes? (3)
10. Explain why the atomic number of an element is more important to the chemist than its relative atomic mass. (3)
11. What is baking soda? How is it prepared? Give its important properties and uses. (3)
12. Why was the Chipko-movement started? How did it help the society? Give some of the benefits. (3)
13. Describe surgical methods of birth control. "It is matter of chance whether a couple will give birth to a boy or a girl." Justify the statement. (3)

14. Why are traits acquired during the lifetime of an individual not inherited? (3)
15. The genotype of white seed coat gram is BB and yellow seed coat gram is bb. When these two are crossed :  
 (a) What colour of seed coat would you expect in their F1 progeny?  
 (b) Give the percentage of yellow seed coat plant if F1 plants are self-pollinated.  
 (c) In what ratio would you find the genotype of BB and Bb in the F2 progeny? (5)
16. State Ohm's Law. Which devices are connected in parallel and in series to the resistor combination and why? Draw a circuit diagram to find equivalent resistance of two resistors R1 and R2 connected in parallel. (5)
17. (a) What is meant by 'magnetic field lines'? List four properties of magnetic field lines.  
 (b) How will you find the direction of magnetic field lines?  
 (c) Trace the magnetic field lines around and inside a bar magnet. (5)
18. Write the balanced chemical equation for the following word equations:  
 (a) Iron + Sulphuric acid → Ferrous sulphate + Hydrogen  
 (b) Aluminium + Sodium hydroxide + water → Sodium Meta aluminate + Hydrogen  
 (c) Silver oxide + Hydrogen peroxide → Silver + water + oxygen  
 (d) Potassium bicarbonate + sulphuric acid → Potassium sulphate + carbon dioxide + water  
 (e) Magnesium + Silver nitrate → Magnesium nitrate + silver (5)
19. Explain the following : (5)  
 (a) Reactivity of Al decreases if it is dipped in HNO<sub>3</sub>  
 (b) Carbon cannot reduce the oxides of Na or Mg  
 (c) Iron articles are galvanised.  
 (d) Metals like Na, K, Ca and Mg are never found in their free state in nature.  
 (e) NaCl is not a conductor of electricity in solid state whereas it does conduct electricity in an aqueous solution as well as in molten state.
20. (a) Describe the Artificial selection with the example of Evolution of Wild cabbage  
 (b) Differentiate between Analogous and homologous organs.  
 (c) Name one vestigial organ present in Human Beings. (5)
21. (a) What is speciation?  
 (b) How are evolution and classification related?  
 (c) Why are all the acquired characters not heritable?  
 (d) How do fossils help us in studying evolution?  
 (e) What are analogous and homologous organs? (5)

### SECTION - B

22. "Gaseous fuels are preferred over solid fuels in chemical industries" Comment. (2)
23. Does the current flowing in the main circuit have the same magnitude as the current flowing through resistor in parallel circuit? Explain your answer. (2)

24. Oxidation can never occur without reduction and vice versa. Comment. (2)
25. Draw the structures of the following compounds : (2)  
(a) Ethanoic acid (b) Butanone
26. Are binary fission and budding faster process of reproduction when compared to sexual reproduction? Justify. (2)
27. Name two important aspects in which plants use osmosis process. (2)