

**DELHI PUBLIC SCHOOL, JAMMU**  
**SESSION (2017-2018)**

(ASSIGNMENT FOR PRE-BOARD)

**Class: X**

**Sub: Science**

1. Write the function of seminal vesicle and prostate gland. Why are testes situated outside the abdominal cavity in the scrotum?
2. What do you mean by contraception? What is the need for contraception? Name the surgical method of contraception.
3. Give five advantages of synthetic detergents over soaps.
4. Draw the structures for the following compounds:
  - i) Ethanoic acid
  - ii) Butanone
  - iii) Pentane
  - iv) Hexanal
5. A convex lens has a focal length of 20 cm. At what distance from the lens should the object be placed so that it forms a real and inverted image 40 cm away from the lens? What would be the size of the image formed if the object is 2 cm high? With the help of a ray diagram show the formation of the image by the lens in this case?
6. One-half of a convex lens is covered with a black paper. Will this lens produce a complete image of the object? Verify your answer with the help of ray diagrams. Explain your observations.
7. Why are traits acquired during the life-time of an individual not inherited?
8. 'Molecular phylogeny favours in determining the ancestry of an organism.' Do you agree with the given statement? Justify it.
9. What do you mean by stakeholder? Name the stakeholders that come under forest and wildlife?
10. Three mirrors, one plane mirror, one concave mirror, and one convex are lying on the table.
  - a) How can a person identify them without touching them or using any other apparatus or device?
  - b) A convex mirror is used in a car has focal length of 300 cm. if a cycle is located at 50 cm from its mirror. Find the position, nature and magnification of the image of the cycle formed in the mirror.
11. What will be your role as an individual in conserving coal, petroleum and forest?
12. Explain the steps or process of tissue culture? What are its advantages?
13. Write chemical equations of the reactions of ethanoic acid with a) Sodium b) Sodium carbonate c) Ethanol in the presence of conc. Sulphuric acid.
14. Compare and contrast the arrangement of elements in Mendeleev's Periodic Table and Modern Periodic Table.
15. What is speciation? What factors could lead to speciation? How is it useful?
16. Answer the following:
  - a) What are STD's?
  - b) Name the causative organisms of Gonorrhoea and herpes.
  - c) How are STD's prevented?
17. Answer the following:
  - a) A certain person has minimum distance of distant vision of 150 cm. He wishes to read at a distance of 25 cm. what focal length glass should he use? What is the nature of eye defect?
  - b) What is presbyopia? State the causes of this defect? How is presbyopia of a person corrected?
  - c) How does the metallic character change along the period?

- d) Define the ionization energy.
- e) A mixture of oxygen and ethyne is burnt for welding. Explain why a mixture of ethyne and air is not used.
- f) An element of group 14 has the atomic number 14. Examine whether the element will exhibit metallic or non-metallic properties.
18. Explain binary reproduction. Mention other methods of asexual reproduction.
19. What is vegetative reproduction? How is vegetative reproduction different from tissue culture?
20. Complete the following reactions:
- a) Ethanol + Hydrogen iodide  $\rightarrow$
- b) Ethanol + thionyl chloride  $\rightarrow$
- c) Methanol + sodium  $\rightarrow$
21. Write the mirror's formula. An object of size 7 cm is placed in front of concave mirror of focal length 18 cm. At what distance from the mirror should a screen be placed, so that a sharp and focused image can be obtained? Find the size and nature of the image formed.
22. A student has difficulty in reading the black board while sitting the last row. What could be the defect he is suffering from? How can it be corrected? Draw a ray diagram for (a) The defective eye. (b) its correction.
23. In human beings, the statistical probability of getting either a male or a female child is 50:50." Justify this statement with the help of a diagram.
24. Why are covalent compounds poor conductors of electricity? Name the gas evolved when Sodium hydrogen carbonate is added to acetic acid. Give chemical reaction.
25. a) An element 'X' is in the second period and group 16 of the periodic table:
- i) Is it metal or non-metal?
- ii) What is its valency?
- iii) What will be the formula of compound of 'X' with Na?
- iv) What is the name of the element?
- b) How does atomic size of an element vary on moving from (i) Left to right in period (ii) bottom to top in a group?
26. Give the reason for the following:
- a) Colour of clear sky is blue.
- b) Sun can be seen about two minutes before actual sunrise.
- c) Traffic light signals are of red colour
- d) Star appears to twinkle
- e) Planets do not twinkle.
27. a) Mention any two reasons to explain the ability of carbon to form a large number of compounds.
- b) Differentiate between saturated and unsaturated hydrocarbons giving one example of each.
- c) Name any other element which like carbon can form compounds which have chains upto seven or eight atoms. How these elements are differing from carbon compounds?
28. a) What are isomers? Illustrate with one example.
- b) Write the chemical formula of Benzene and draw its structure.
- c) Write the name of unsaturated hydrocarbons which contains (i) one or more double bonds (ii) one or more triple bonds.
29. Distinguish between pollination and fertilisation. Explain why, pollination may occur without fertilisation but fertilisation will not take place without pollination. Draw a neat diagram showing the process of pollination and fertilisation in a flowering plant and label the following on it.
- i) Female germ cell iii) ovary
- ii) Male germ cell iv) pollen tube
30. Why do you think that the noble gases should be placed in a separate group?