CBSE
Solved Paper 2019

Science
Class X

Time : 3 hrs **MM : 80**

General Instructions

(i) The question paper comprises five Sections, A, B, C, D and E. You are to attempt All the sections.
(ii) All questions are compulsory.
(iii) Internal choice is given in Sections B, C, D and E.
(iv) Question numbers 1 and 2 in Section A are one mark questions. They are to be answered in one word or in one sentence.
(v) Question numbers 3 to 5 in Section B are two marks questions. These are to be answered in 30 words each.
(vi) Question numbers 6 to 15 in Section C are three marks questions. These are to be answered in about 50 words each.
(vii) Question numbers 16 to 21 in Section D are five-marks questions. These are to be answered in 70 words each.
(viii) Question numbers 22 to 27 in Section E are based on practical skills. Each question is a two marks question. These are to be answered in brief.

Section A

1. Name and define the S.I unit of current. (1)

2. Write the name of the main constituents of biogas. Also state its percentage. (1)

Section B

3. Write the name, symbol and electronic configuration of an element X whose atomic number is 11.

OR

Can the following group of elements be classified as Dobereiner's triads? (2)

a) Na, Si, Cl b) Be, Mg, Ca

Atomic masses: Be-9; Na-23, Mg-24, Si-28, Cl-35, Ca-40.

Justify your answer in each case.

4. How is O_2 and CO_2 transported in human beings? (2)

5. Write the structure of eye lens and state the role of ciliary muscles in the human eye. (2)

Section C

6. Identify the acid and base which form sodium hydrogen carbonate. Write chemical equation in support of your answer. State whether this compound is acidic, basic or neutral. Also write its pH value. (3)

7. Based on the group valency of elements, write the molecular formula of the following compounds giving justification for each: (3)

i. Oxide of first group elements

ii. Halide of the elements of the group thirteen

iii. Compound formed when an element, A of group 2 combines with an element, B of group seventeen.

8. 2 g of silver chloride is taken in a china dish and the china dish is placed in sunlight for some time. What will be your observation in this case? Write the chemical reaction involved in the form of a balanced chemical equation. Identify the type of chemical reaction.

OR (3)

Identify the type of reactions taking place in each of the following cases and write the balanced chemical equation for the reactions:

(a) Zinc reacts with silver nitrate to produce zinc nitrate and silver.

(b) Potassium iodide reacts with lead nitrate to produce potassium nitrate and lead iodide.

9. Define the term transpiration. Design an experiment to demonstrate this process. (3)

10. What is feedback mechanism of harmonic regulation? Take the example of insulin to explain this phenomenon. (3)

11. What are plant hormones? Name the plant hormones responsible for the following: (3)

i. Growth of stem

ii. Promotion of cell division

iii. Inhibition of growth

iv. Elongation of cells

12. Name the plant Mendel used for his experiment. What type of progeny was obtained by Mendel in F_1 and F_2 generations when he crossed the tall and short plants? Write the ratio he obtained in F_2 generation plants.

OR (3)

List two differences between acquired traits and inherited traits by giving an example of each.

13. Why should there be equitable distribution of resources? List three forces that would be working against an equitable distribution of our resources. (3)

14. How can we help in reducing the problem of waste disposal? Suggest any three methods.

OR (3)

Define an ecosystem. Draw a block diagram to show the flow of energy in an ecosystem.

15. What is a rainbow? Draw a labeled diagram to show the formation of a rainbow. (3)

SECTION D

16. Write the chemical formula and name of the compound which is the active ingredient of all alcoholic drinks. List its two uses. Write chemical equation and name of the product when this compound reacts with-

i. Sodium metal

ii. Hot concentrated sulphuric acid

OR (5)

What is methane? Draw its electron dot structure. Name the type of bonds formed in this compound. Why are such compounds?

i. Poor conductors of electricity

ii. Have low melting and boiling points? What happens when this compound

burns in oxygen?

17. (a) Write chemical equations for the following reactions: (5)

i. Calcium metal reacts with water

ii. Cinnabar is heated in the presence of air

iii. Manganese dioxide is heated with aluminium powder

(b) What are alloys? List two properties of alloys.

18. An object is placed at a distance of 30 cm from a concave lens of the focal length of the focal length 30 cm. (5)

i. Use lens formula to determine the distance of the image from the lens.

ii. List four characteristics of the image (nature, position, and size,

erect inverted) in this case.

iii. Draw a labeled diagram to justify your answer of part (ii)

19. i. With the help of a suitable circuit diagram prove that the reciprocal of

the equivalent resistance of a group of resistances joined in parallel is

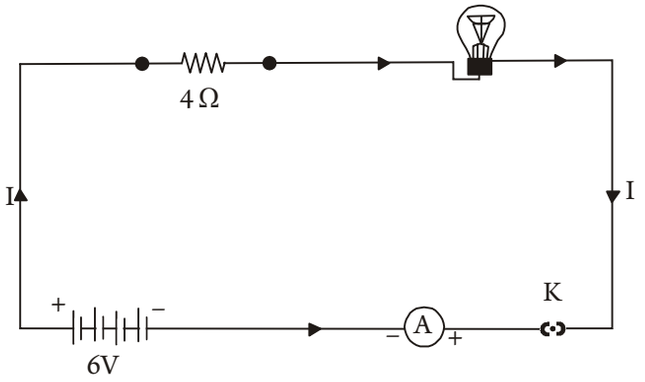
equal to the sum of the reciprocals of the individual resistances.

ii. In an electric circuit two resistors of 12Ω each are joined in parallel to a

6V battery. Find the current drawn from the battery.

OR (5)

An electric lamp of resistance 20 Ω and a conductor of resistance 4 Ω are connected to a 6V battery as shown in the circuit. Calculate:



i The total resistance of the circuit

ii The current through the circuit

iii The potential difference across the

(a) Electric lamp and

(b) Electric conductor

iv. Power of the lamp.

20. What is a solenoid? Draw the pattern of magnetic field lines of: (5)

i. A current carrying solenoid

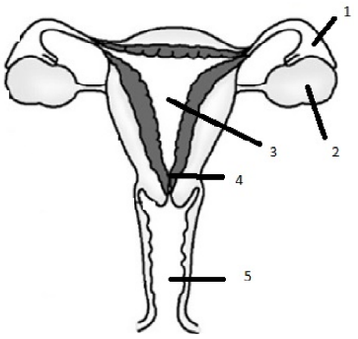
ii. A bar magnet.

List two distinguishing features between the two fields.

21. Define pollination. Explain the different types of pollination. List two agents of pollination. How does suitable pollination lead to fertilization?

OR (5)

i. Identify the given diagram. Name the parts 1 to 5.



ii. What is contraception? List three advantages of adopting contraceptive measures.

Section E

22 . In the experimental set up to show that "CO_2 is given out during respiration", name the substance taken in the small test tube kept in the conical flask. State its function and consequence of its use. (2)

23. A student is observing the temporary mount of a leaf peel under a microscope. Draw a labeled diagram of the structure of then stomata as seen under the microscope.

OR (2)

Draw a labeled diagram in proper sequence to show budding in hydra.

24. List four precautions which a student should observe while determining the focal length of a given convex lens by obtaining image of a distant object on a screen. (2)

25. While studying the dependence of a potential difference (V) across a resistor on the current (I) passing through it, in order to determine the resistance of the resistor, a student took 5 readings for different values of current and plotted a graph between V and I. He got a straight line graph passing through the origin. What does the straight line signify? Write the method of determining resistance of the resistor using this graph. (2)

OR

What would you suggest to student if while performing an experiment he finds that the pointer/ needle of ammeter and voltmeter do not coincide with the zero marks on the scales when circuit is open? No extra ammeter/voltmeter is available in the laboratory.

26. In three test tubes A, B and C, three different liquids namely, distilled water, underground water and distilled water in which a pinch of calcium sulphate is dissolved, respectively are taken. Equal amount of soap solution is added to each test tube and the contents are shaken. In which test tube, will the length of the foam (lather) be longest? Justify your answer. (2)

27. Blue litmus solution is added to two test tubes A and B containing dilute HCl and NaOH solution respectively. In which test tube a color change will be observed? State the color change and give its reason. (2)

OR

What is observed when 2 ml of dilute hydrochloric acid is added to 1 g of sodium carbonate taken in a clean and dry test tube? Write chemical equation for the reaction involved.