CBSE Class 10 Science Sample Paper

Time Duartions:3Hrs **Maximum Marks:90**

General Instructions:

1. The question paper comprises of two Sections, A and B.You are to attempt both the section
2. All questions are compulsory.
3. All questions of section A and All questions of section B are to be attempted separately.
4. Question numbers 1 to 3 in Section-A are one mark questions. These are to be answered in one word or in one sentence.
5. Question numbers 4 to 6 in Section-A are two marks questions. These are to be answered in about, 30 words each.
6. Question numbers 7 to 18 in Section-A are three marks questions. These are to be Answered in about 50 words each.
7. Question numbers 19 to 24 in Section-A are five marks questions. These are to be answered in about 70 words each.
8. Question numbers 25 to 33 in Section-B are multiple choice questions based on practical skills, bach question is a one mark question. You are to select one most appropriate response out of the four provided to you.
9. Question numbers 34 to 36 in Section-B are questions based on practical skills. Each question carries two marks.

SECTION-A

1. What are cations and anions ?

2. WhatisDNA?

3. Give one example each from your daily life where the domestic waste can be effectively reused and recycled.

4. Why are forest considered "biodiversity hot spots"? List two ways in which an individual can contribute effectively to the management of forests and wildlife ?(HOTS)

5. In a area A, the leaf material available to beetles was very less. What are the two consequencesseen in the beetles ? (HOTS)

6. "A concave mirror of focal length 'f' can form a magnified erect as well as an inverted image of an object placed in front of it." Justify this statement stating the position of the object with respect to the mirror in each case for obtaining these images.

7. What is the difference between the molecules of soaps and detergents, chemically ? Explain the cleansing action of soaps.

8. When we take 1 ml ethanol and 1 ml ethanoic acid along with a few drops of concentrated sulphuric acid in a test tube, a sweet smelling substance is formed. Name the compound and give the balanced chemical equation for the reaction. What do we call the reverse reaction to give back alcohol and carboxylic acid which is used in the preparation of soap ?

9. Based on the group valency of elements, state the formula for the following giving justification for each:
(i) Oxides of 1^{st} group elements,
(ii) Halides of the elements of group 13, and
(iii) Compounds formed when an element of group 2 combines with an element of group16:

10. Ravi read the formation of covalent bonds and came to know the property of carbon. Carbon has four valence electrons. It cannot lose four electrons since very high amount of energy will be required to lose four electrons to form C^{4+}. Carbon cannot gain four electrons to form C^{4-} ion as six protons cannot hold 10 electrons easily and there will be strong interelectronic repulsion.
Questions:
(i) What is the atomic number and electronic configuration of carbon ?
(ii) Explain how covalent bonding is important between carbon compounds. Give any two suggestions.

11. With the help of a cross done with garden pea plants, trace the work done by Mendel with a tall and a short plant to arrive at a 3 :1 ratio in the F_2

12. The genotype of green-stemmed tomato plants is denoted by GG and that of purple-stemmed tomato plants as gg. When these two plants are crossed :
(i) What colour of stem would you expect in their F1 progeny ?
(i) Give the percentage of purple-stemmed plant if F1 plants are self pollinated.
(ii) In what ratio would you find the green and purple colour in the F1 progeny ?

13. (a) Give the evidence that the birds have evolved from reptiles.
(b) Insects, octopus, planaria and vertebrates possess eyes. Can we group these animals together on the basis of eyes that they possess ? Justify your answer giving reason.

14. A cross was made between pure breeding pea plants one with round and green seeds and the other with wrinkled and yellow seeds. 3
(a) Write the phenotype of F1progeny. Give reason for your answer.
(b) Write the different types of F_2 progeny obtained along with their ratio, when F1progeny was selfed.

15. (a) Define the term magnification. Write the formula for magnification of mirror explaining the symbols used in the formula.
(b) The magnification produced by a convex lens is -2. What is meant by this statement and also write the information regarding image obtained from it.

16. Define the power of lens. The power of lens is + 2.0 D.
(a) Find the focal length of lens in m.
(b) Name the kind of this lens. Explain with the help of figure whether this lens would converge or diverge a beam of lens.

17. (a) " Stars seem higher than they actually are". .
(b) "The sky appears dark to passengers flying at very high altitudes".
Justify these statements with reason.

18. Define angle of deviation. Why do different components of white light split up into spectrum when it passes through a triangular glass prism ? Show the angle of deviation for red colour when white light passes through a prism.

19. (a) Why do we classify elements ?
(b) What are the two criterias used in the development of Modern Periodic Table ?
(c) State the position of (a) metals, (b) non-metals and (c) metalloids in the periodic table.
(d) Would you place two isotopes of chlorine; Cl-35 and Cl-37 in different slots of the periodic table because of their different atomic masses or in the same slot because their chemical properties are same ? Justify your answer.

20. (a) Draw a diagram showing germination of pollen on stigma of a flower.
(b) Label pollen grain, male germ cells, pollen tube and female germ cell in the above diagram.
(c) Define fertilization in plants.

21. (i) How many characters are transmitted in the following cross ? Name them. Identify the dominant and recessive traits.
(ii) What is the information source for making proteins in the cell ?
(iii) Name an organism which can change its sex during its lifetime.

22.(a) State the laws of refraction of light. Explain the term absolute refractive index of a medium and write an expression to relate it with the speed of light in vacuum.
(b) The absolute refractive indices of two media 'A' and 'B' are 2.0 and 1.5 respectively. If the speed of light in

medium 'B' is $2xl0^8$ m/s, calculate the speed of light in :

(i) vacuum,

(ii) medium 'A'.

23. (a) Describe an activity along with a labeled diagram the phenomenon of dispersion through a prism.

(b) Explain in brief the formation of rainbow with the help of a figure. 5

24. An estimated 50 million tons of E-waste are produced each year. The USA discards 30 million computers each year and 100 million phones are disposed off in Europe each year. The Environmental Protection Agency estimates that only 15-20% of e-waste is recycled, the rest of these electronics go directly into landfills and incinerators.

(a) Mention any two possible reasons for generation of E-waste in large amount.

(b) Suggest any two ways by which you can help in reducing the e-waste in the environment ? (HOTS)

SECTION-B

25. Student adds a few drops of ethanoic acid to test tubes X, Y and Z containing aqueous solutions of sodium chloride, sodium hydroxide and sodium carbonate, respectively. If he now brings a burning splinter near the mouth of the test tubes immediately after adding ethanoic acid in each one of them, in which of the test tube or test tubes the flame will be extinguished ?

(a) X and Y

(B) Y and Z

(C) X and Z

(D) only Z

26. About 2 ml of acetic acid was taken in each of the three test-tubes B Q and R and 5 ml, 10 ml and 15 ml of distilled water were added to them, respectively. Instantaneously a clear solution is observed in the test-tubes:

(A) P and Q only (B) Q and R only

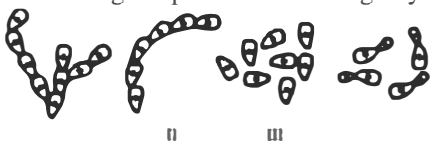
(C) R and P only (D) P, Q and R.

27. When ethanoic acid is added to a solution of substance X, colourless and odourless gas Y is liberated. The gas Y turns lime water milky. The substance X is :

(A) Sodium hydrogen carbonate (B) Sodium hydroxide

(C) Sodium acetate (D) Sodium chloride.

28. Identify the figures showing the process of budding in yeast.



II III

(A) I, II and III (B) II, III and IV

(C) I, II and IV (D) III, IV and I

29. You are asked by your teacher to study the different parts of an embryo of a gram seed. Given below are the steps to be followed for the experiment: 1

I. Soak the gram seeds in plain water and keep them overnight.

II. Cut a soaked seed and observe its different parts.

III. Take some dry gram seeds in a petri dish.

IV. Drain the excess water.

V. Cover the soaked seeds with a wet cotton cloth and leave them for a day.

The correct sequence of these steps is :

(A) III, I, V, IV, II (B) III, I, II, IV, V

(C) III, IV, V, I, II (D) III, I, IV, V, II

30. Four students P Q, R and S differently reported the following set of organs to be analogous : 1

P. Forelimb of a frog and forelimb of a lizard.

Q. Forelimb of a bird and forelimb of a human.

R. Wings of a parrot and wings of a butterfly.

S. Wings of a bird and wings of a bat.

The two students who have reported correctly are

(A) P and Q

(B) Q and R

(c) R andS

(D) PandS

(D) Size of the parent cell to undergo fission is not appropriate.

31. A student wants to find the focal length of a concave mirror given to him. He focuses a distant object with this mirror, to obtain a sharp image. The chosen object should not be :

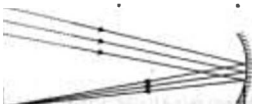
(A) A building

(B) A tree

(C) A window

(D) The sun

32. The focal length of the concave mirror in the experimental set up shown below, equals



(A) 10.4 cm
(B) 3. 4 cm
(C) 7.0 cm
(D) 7.1cm

33. A student has obtained the image of a distant object with a concave mirror to determine its focal length. If he has selected a well-illuminated red building as object, which of the following correctly describes the features of the image formed ?

A. Virtual, inverted and diminished image in red shade.

B. Real, erect and diminished image in pink shade.

C. Real, inverted and diminished image in red shade.

D. Virtual, erect and enlarged image in red shade.

34. Is a sample containing dil. HC1 hard ? Why ?

35. Write two precautions to be taken while identifying different parts of an embryo of a dicot seed.

36. A student performed an experiment with convex lens and found the virtual image of an object. Find

(a) Position of the object

(b) Draw ray diagram for the above situation.