

CBSE Class 10 Science Sample Paper

Time Duration: 3Hrs

Maximum Marks: 90

General Instructions:

1. The question paper comprises of two Sections, A and B. You are to attempt both the sections.
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, each 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. The molecular formula of 'A' is $C_{10}H_{18}$ and 'B' is $C_{18}H_{36}$. Name the homologous series to which they belong.
2. What is heredity?
3. List two items which can be easily recycled, but we generally throw them in the dust-bins.
4. Why is Government of India imposing a ban on the use of polythene bags? Suggest two alternatives to these bags and explain how this ban is likely to improve the environment.
5. "The chromosome number of the sexually reproducing parents and their offspring is the same." Justify this statement.
6. (a) With the help of a diagram demonstrate the process of regeneration as seen in planaria.
(b) Which type of cells are used by such multi-cellular organisms to regenerate? (HOTS)
7. Write the chemical equations for the following chemical reactions and name the carbonic compound obtained.
(i) Reaction of acidified potassium dichromate solution with ethanol on heating.
(ii) Reaction of sodium metal with ethanol.
(iii) Reaction of concentrated sulphuric acid with ethanol at 443 K.

8. What is meant by Isomers ? Draw the structure of two isomers of butane, C_4H_{10} . Explain why we cannot have isomers of first three members of alkane series.

9. List two tests for experimentally distinguishing between an alcohol and a carboxylic acid and describe how these tests are performed.

10. Define the following processes of asexual reproduction.

(i) Spore formation (ii) Regeneration (iii) Multiple fission

11. What is vegetative propagation ? When is it used ? List two uses.

12. (a) With the help of a diagram, show asexual reproduction in Rhizopus ?

(b) How this method is advantageous for Rhizopus ?

13. What is the effect of DNA copying, which is not perfectly accurate, on the reproduction process ? How does the amount of DNA remain constant though each new generation is a combination of DNA copies of two individuals ?

14. (a) Name any two plants that reproduce by grafting.

(b) List any two benefits to an organism that reproduces through spores ?

15. Define absolute refractive index. Absolute refractive indices of medium 'A' and medium 'B' are ' n_a ' and ' n_b ', What is the refractive index of medium 'B' with respect to medium 'A'? How does the velocity of light vary with change in the optical density of the media ?

16. (i) Ravi kept a book at a distance of 10 cm from the eyes of his friend Hari. Hari is not able to read anything written on the book. Explain why ?

(ii) A lens of focal length 5.0 cm is being used by a student in the laboratory as a magnifying glass. His least distance of distinct vision is 25 cm. What magnification is the student getting ?

17. Sania and Shreya are best friends and study in grade 4, recently, Sania has been facing difficulty in reading the black-board text from the last desk. Shreya wonders why Sania avoids sitting on the last desk. On observation, she found that Sania often carries junk food in her lunch. Shreya has started sharing her lunch-full of green vegetables and fruits with her. Sania is now better and has also started taking a 'balanced diet'.

(i) Name the eye defect Sania is suffering from ?

(ii) What are the two possible deformities related to her eye defect ?

(iii) What values are shown by Shreya and Sania ? (Value Based Question)

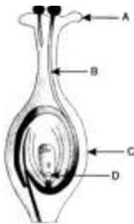
18. Fossils are the remains, traces or impression of the dead animals and plants of geological past. Fossils are formed by layer in the earth's crust. Fossils of prokaryotes were found in older rocks than those of eukaryotes. Invertebrates were formed before vertebrates. Among vertebrates, fishes appeared earlier than amphibians and amphibians appeared earlier than reptiles, which are earlier than birds and mammals. Thus, fossils provide evidence for evolution.

Questions:

- (i) What is the main factor on which the formation of fossil depends ?
- (ii) What is fossil dating ? Why the study of fossils important ?

19. Give two examples of covalent compounds which you have studied. State any four properties in which covalent compounds differ from ionic compounds.

20.(a) Identify A, B, C and D in the given diagram and write their names.



- (b) What is pollination ? Explain its significance.
- (c) Explain the process of fertilisation in flowers. Name the parts of the flower that develop after fertilisation into
 - (i) seed, (ii) Fruit

- 21.(i) What is meant by traits of an individual ?
- (ii) Explain inherited trait and acquired trait.
- (iii) Define speciation. List the factors which could lead to the rise of a new species.

22. A student wants to project the image of a candle flame on the walls of the school laboratory by using a mirror.

- (a) Which type of mirror should he use and why ?
- (b) At what distance, in terms of focal length 'f' of the mirror, should he place the candle flame to get the magnified image on the wall ?
- (c) Draw a ray diagram to show the formation of the image in this case.
- (d) Can he use this mirror to project a diminished image of the candle flame on the same wall ? State 'how' if your answer is 'yes' and 'why not' if your answer is 'no.'

23. A student has focused the image of a candle flame on a white screen using a concave mirror. The situation is as given below :

Length of the flame = 1.5 cm Focal length of the mirror = 12 cm Distance of flame from the mirror = 18 cm

If the flame is perpendicular to the principal axis of the mirror, then calculate the following :

(a) Distance of the image from the mirror

(b) Length of the image

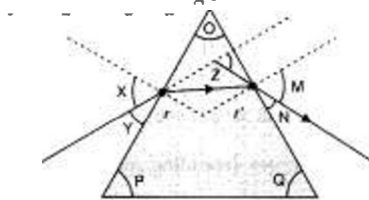
If the distance between the mirror and the flame is reduced to 10 cm, then what would be observed on the screen

? Draw ray diagram to justify your answer for this situation.

24. Write any five ways in which the locals and tribal are dependent on the forest ?

SECTION-B

25. The path of a ray of light passing through a glass prism is shown below :



In this diagram, the angle of prism, angle of incidence, angle of emergence and angle of deviation, respectively, have been represented by:

(A) O, Y, Z and N,

(B) P, Y, M and Z,

(C) O, X, M and Z,

(D) P, X, Z and N.

26. A student is observing a diagram showing the path of a ray of light passing through a glass prism. He would find that for all angles of incidence, the ray of light bends :

(A) towards the normal while entering the prism and away from the normal while emerging from the prism.

(B) away from the normal while entering the prism and towards the normal while emerging from the prism.

(C) away from the normal while entering as well as while emerging from the prism.

(D) towards the normal while entering as well as while emerging from the prism.

27. A student was asked by his teacher to find the image distance for various object distance in case of a given convex lens. He performed the experiment with all precautions and noted down his observations in the following table :

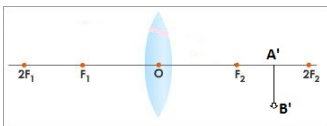
S. No.	Object distance cm	Image distance cm
1	60	15
2	48	1
3	36	21
	24	2

34. Write the names of apparatus/chemicals required to study the following properties of ethanoic acid in the laboratory.

The properties are : Nature, odour, solubility and action on sodium hydrogen carbonate.

35. What is the significance of asexual reproduction ?

36. Observe the following incomplete ray diagram of an object where the image A 'B' is formed after refraction of a convex lens.



On the basis of above information fill in the blanks :

(i) The position of object AB would have been ____ .

(ii) Size of the object would have been ____ than the size of image.

