

BHARATH COACHING CENTRE

10th CBSE

Science

Total: 90

Model Public Exam - 2

Time: 3.00 hrs

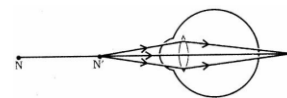
- i) Question numbers 1 to 3 in Sections - A are one mark question. They are to be answered in one word or in one sentence.
- ii) Question numbers 4 to 6 in Section - A are two marks questions. These are to be answered in 30 words each.
- iii) Question numbers 7 to 18 in Sections - A are three marks questions. These are to be answered in about 50 words each.
- iv) Question numbers 19 to 24 in Section - A are 5 marks questions. These are to be answered in 70 words each.
- v) Question numbers 25 to 33 in Section- B are multiple choice questions based on practical skills.
- vi) Each question is a one mark question. You are to select one most appropriate response out of the four provided to you.
- vii) Question numbers 34 to 36 in Section B are two marks questions based on practical skills.

SECTION – A

1. Molecular formula of a hydrocarbon is C_3H_8 . Draw its complete structure and write its name.
2. No rainbow could be observed from the surface of moon by the astronauts. What could be the possible reason?
3. Name any two non – biodegradable wastes.
4. Two element X, Y and Z belong to 17th group but to 2nd, 3rd and 4th period respectively. Number of valence electrons in Y is 7. Find the number of valence electrons in X and Z.
5. (a) Atomic radius of hydrogen is 37pm. Express it in meters.
(b) How does atomic size vary in a group and in a period?
6. What is meant by power of accommodation of an eye? State the role of ciliary muscles in accommodation.
7. Write chemical name and formula of Vinegar? Describe with chemical equations what happens when sodium reacts with ethanol.
8. What are metalloids? Write any two examples.
- a. Given below are some of the elements of first group Li, Na, K (Their atomic numbers are 3, 11, 19 respectively and they belong to 2nd, 3rd and 4th period respectively) Arrange these in the decreasing order of metallic character exhibited by them.
9. List three advantages of growing plants by vegetative propagation.
Define genetics. Who is regarded as the 'Father of Genetics'? Name the plant on which he performed his experiments.
10. Name the unit of inheritance. What is its function? How are inherited traits different from acquired traits? Give example.
11. (a) What are fossils? How do we know how old the fossils are?
(b) State two differences between Homologous organs and Analogous organs.
12. An image $\frac{2}{3}$ the size of the object is formed by a convex lens at a distance of 12cm from it. Find the focal length of the lens.

13. Draw ray diagram and describe the nature of the image formed by a concave mirror when the object is kept_____

- between pole and focus of the mirror
- Between infinity and centre of curvature of the mirror.



14. Study the diagram given below and answer the questions that follow

- Which defect of vision is represented in this case? Give reason for your answer.
- What could be the two causes of this defect?
- With the help of a diagram show how this defect can be corrected using a suitable lens.

15. What is minimum number of rays required for locating the image formed by a concave mirror for an object? Draw a ray diagram to show the formation of a virtual image by a concave mirror.

16. What is meant by power of accommodation of an eye? State the role of ciliary muscles in accommodation.

17. What is scattering of light? The colour of Sun looks different at different times of the day. Why?

18. Mention the functions of (a) placenta (b) fallopian tube in the human female reproductive system.

19. Name two commonly used fossil fuels. List two disadvantages of burning fossil fuels. Write balanced chemical equation for the following?

- Methane is burned in sufficient air.
- Ethanol is treated with sodium.
- Ethanoic acid is reacted with sodium hydroxide.
- Ethanoic acid is treated with Sodium carbonate.
- Ethanol is mixed with Ethanoic acid in the presence of an acid and is heated.

20. (a) Draw the longitudinal section of a flower and label the following parts.

- stigma
- style
- anther
- ovary

(a) Why papaya flowers are called unisexual?

(b) After fertilization in a flower, mention the structures that develop into the embryo and seed.

21. a. Write one use of concave mirror as well as convex mirror.

b. Draw ray diagrams for the following cases when a ray of light

- Passing through centre of curvature of a concave mirror is incident on it.
- Parallel to principal axis is incident on convex mirror.
- Is incident at the pole of a convex mirror.
- Passing through focus of a concave mirror incident on it.

22. Draw the structure of

- (i) ethanoic acid
- (ii) propanal
- (iii) propene
- (iv) chloropropene

(b) Write two differences between soaps and detergents.

(c) Draw the structure of the soap micelle formed when soap is dissolved in water.

23.

- Draw a labelled diagram of female reproductive system.
- Name the part that produces eggs and the one that carries it to womb.
- What changes occur in uterus of a female if an egg is not fertilized.

24.

- State the laws of reflection.

- ii) List the characteristics of image formed by a plane mirror.
- iii) Name the spherical mirror used as rear view mirror in vehicles. What are the advantages of using this mirror compared to using plane mirror?

25.

- i) Draw a labelled diagram of human – male reproductive system.
- ii) Name the part that produces sperms. What is the shape of sperms and what are the advantages of this shape?

26. Zinc granules are added to three test tubes A, B and C containing solutions of CuSO_4 , $\text{Al}_2(\text{SO}_4)_3$ and FeSO_4 respectively. The change in colour will not be observed in :

- a. A and B (b) B and C (c) C and A (d) B only

27. A student adds some iron filings to a solution of copper sulphate. After few minutes, he observed that blue colour of the solution has changed and a layer gets deposited on the iron filings. The colour of the solution and that of the coating would respectively, be

- (a) brown and blue (b) pale green and blue
(c) red and green (d) pale green and reddish brown

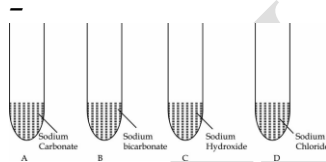
28. When red litmus solution is added to acetic acid

- (a) It changes to blue (b) It remains red
(c) It becomes colorless (d) It changes to dark pink

29. On mixing ethanoic acid with water in a beaker, to test its solubility, Rima was asked to give her inference from observations. Correct inference would be Ethanoic acid.

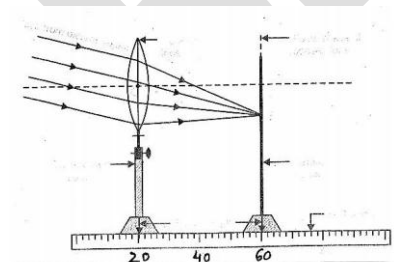
- (a) Is soluble in water (b) is insoluble in water
(c) is partially soluble in water (d) forms precipitate with water

30. Pratap added acetic acid in the four test-tubes A, B, C, D containing different chemical substances as shown above. He then brought burning match stick near the mouth of each test tube. The match stick will not be put off near the mouth of which of the test-tubes



- a. A and B (b) B and C (c) C and D (d) A and D A, B, C, D

31. The focal length of a convex lens shown below equals



- (a) 41cm (b) 40cm (c) 20cm (d) 60cm

32. A student mounts a spherical mirror on a mirror stand and places the stand along a metre scale at 22cm mark. In front of spherical mirror he mounts a white screen and moves it back and forth along the metre scale, till a highly sharp, well defined image of a distance

building is formed on the screen, now at 45.5cm mark of the metre scale. What is the focal length of the mirror?

- (a) 10cm (b) 23.5cm (c) 17.25cm (d) 15.5cm

33. Three students measured the focal length of a convex lens using parallel rays from distant object. All of them measured the distance between the lens and the inverted image on screen. Student A saw a sharp image on the screen and labeled the distance as f_1 . Student B saw a slightly larger blurred image on the screen and labeled the distance as f_2 . Student C saw a smaller blurred image on the screen and labeled the distance as f_3 .

The likely relationship between f_1 , f_2 and f_3 would be _____

- a. $f_1 = f_2 = f_3$ (b) $f_1 < f_2$ and f_3 (c) $f_3 < f_1 < f_2$ (d) $f_1 < f_2$ and $f_1 = f_3$
34. With regard to turnip, carrot, sweet potato and potato, three belong to the same category. Identify those three modifications and mention whether they homologous or analogous. Also mention the reason why the fourth modifications do not belong to the same category.
35. A student obtained a sharp image of a lighted candle on a screen using a convex lens. Now he wants to focus a distant lamp on a far away electric pole. In which direction should the lens be move for this purpose with respect to the screen, to get a sharp image on the screen? Justify your answer.
36. A student has to perform an experiment on tracing the path of a ray of light passing through a rectangular glass slab for three different angles of incidence. Two of his friends suggest the following options to him:
- (A) Draw the incident rays corresponding to 20° , 50° and 70° as angles of incidence and fix the two pins on the incident ray just 2 cm apart.
- (B) Draw the incident rays corresponding to 30° , 45° and 60° as the angles of incidence and fix two pins on the incident rays nearly 8 cm apart. Which is the better option he should follow? Give reason in support of your answer.