

**CBSE**  
**Class X Science**  
**Board Paper – 2011 (Set 1)**  
**Term II**

**Total time: 3 hrs**

**Total marks: 80**

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**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.  
There is no overall choice. However, internal choice has been provided in all the three questions of five marks category. Only one option in such question is to be attempted.
  3. All questions for **Section A** and all questions of **Section B** are to be attempted separately.
  4. Questions number **1 to 4** in **Section A** are **one mark** question. These are to be answered in one word or one sentence.
  5. Question numbers **5 to 13** in **Section A** are **two marks** questions. These are to be answered in about **30 words each**.
  6. Question numbers **14 to 22** in **Section A** are **three marks** questions. These are to be answered in about **50 words each**.
  7. Question numbers **23 to 25** in **Section A** are **five marks** questions. These are to be answered in about **70 words each**.
  8. Question numbers **26 to 41** 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.
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**SECTION A**

1. Why is it necessary to conserve our environment? [1]
2. Distinguish between biodegradable and non-biodegradable wastes. [1]
3. What will be the colour of scattered sunlight when the size of the scattering particles is relatively large? [1]
4. Draw the structure of Butanone molecule,  $\text{CH}_3\text{COC}_2\text{H}_5$ . [1]
5. Explain with the help of a diagram, how we are able to observe the sunrise about two minutes before the Sun gets above the horizon. [2]

6. List any four reasons for vegetative propagation being practised in the growth of some type of plants. [2]
7. State the role of [2]
- i. Seminal vesicle
  - ii. Prostate gland in the human body.
8. List any four disadvantages of using fossil fuels for the production of energy. [2]
9. Give two examples for each of the following: [2]
- i. Renewable sources or energy
  - ii. Non-renewable sources of energy
10. How does the metallic character of elements change along a period of the periodic table from the left to the right and why? [2]
11. In the modern periodic table, the element calcium (atomic number = 20) is surrounded by elements with atomic numbers 12, 19, 21 and 38. Which of these elements has physical and chemical properties resembling those of calcium and why? [2]
12. State any four characteristics of the image of the objects formed by a plane mirror. [2]
13. Draw a diagram to show dispersion of white light by a glass prism. What is the cause of this dispersion? [2]
- 14.
- (a) What is meant by the power of accommodation of an eye?
  - (b) A person with a myopic eye cannot see objects beyond 1.2 m directly. What should be the type of the corrective lens used? What would be its power? [3]
15. What does HIV stand for? Is AIDS an infectious disease? List any four modes of spreading AIDS. [3]
16. Describe any three ways in which individuals with a particular trait may increase in population. [3]
17. State the evidence we have for the origin of life from inanimate matter. [3]
18. Give an example of body characteristics used to determine how close two species are in terms of evolution and explain it. [3]

19. Write chemical equations to show what happens when: [3]
- Ethanol is heated with concentrated sulphuric acid at 443 K.
  - Ethanol reacts with ethanoic acid in the presence of an acid acting as a catalyst.
  - An ester reacts with a base.
20. The atomic number of an element is 16. Predict [3]
- the number of valence electrons in its atom
  - its valency
  - its group number
  - whether it is a metal or a non-metal
  - the nature of oxide formed by it
  - the formula of its chloride
21. An object is placed between infinity and the pole of a convex mirror. Draw a ray diagram and also state the position, the relative size and the nature of the image formed.
22. What is the principle of reversibility of light? Show that the incident ray of light is parallel to the emergent ray of light when light falls obliquely on a side of a rectangular glass slab. [3]
23. With the help of suitable diagrams, explain the various steps of budding in Hydra. [5]

**OR**

What is binary fission in organisms? With the help of suitable diagrams, describe the mode of reproduction in Amoeba.

24. [5]
- State two properties of carbon which lead to a very large number of carbon compounds.
  - Why does micelle formation take place when soap is added to water? Why are micelles not formed when soap is added to ethanol?

**OR**

Explain isomerism. State any four characteristics of isomers. Draw the structures of possible isomers of butane,  $C_4H_{10}$ .

25.

- (a) What is meant by 'power of a lens'? [5]
- (b) State and define the S.I. unit of power of a lens.
- (c) A convex lens of focal length 25 cm and a concave lens of focal length 10 cm are placed in close contact with each other. Calculate the lens power of this combination.

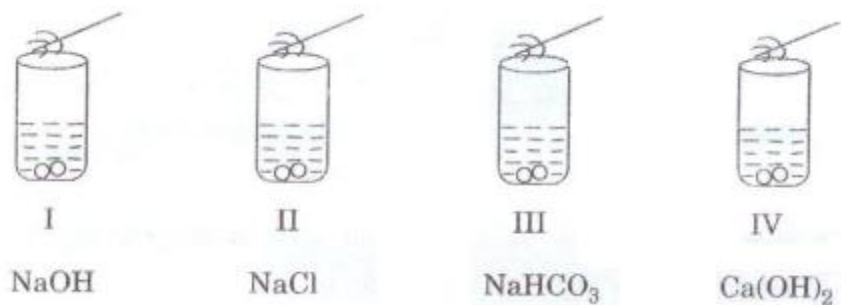
**OR**

- (a) Draw a ray diagram to show the formation of image of an object placed between infinity and the optical centre of a concave lens.
- (b) A concave lens of focal length 15 cm forms an image 10 cm from the lens. Calculate
  - i. The distance of the object from the lens.
  - ii. The magnification for the image formed
  - iii. The nature of the image formed.

## SECTION B

26. The shape of yeast cells is [1]
- (a) Only spherical
  - (b) Only oval.
  - (c) Irregular
  - (d) Both oval and spherical.

27. A student added acetic acid to test tubes I, II, III and IV containing the labeled substances and then brought a burning splinter near the mouth of each test tube. [1]



The splinter would be extinguished when brought near the mouth of test tube.

- (a) I
  - (b) II
  - (c) III
  - (d) IV
28. Acetic acid reacts with solid sodium hydrogen carbonate, [1]
- (a) Slowly forming no gas
  - (b) Vigorously with effervescence
  - (c) Slowly without effervescence
  - (d) Vigorously without gas formation
29. Vapours of acetic acid smell: [1]
- (a) Pungent like vinegar
  - (b) Sweet like rose
  - (c) Suffocating like sulphur dioxide
  - (d) Odorless like water

**30.** A clean aluminium foil was placed in an aqueous solution of zinc sulphate. When the aluminium foil was taken out of the zinc sulphate solution after 15 minutes, its surface was found to be coated with a silvery grey deposit. From the above observation it can be concluded that: [1]

- (a) Aluminium is more reactive than zinc
- (b) Zinc is more reactive than aluminium.
- (c) Zinc and aluminium both are equally reactive.
- (d) Zinc and aluminium both are non-reactive

**31.** The colour of raisins as used in the experiment, 'To determine the percentage of water absorbed by raisins', was [1]

- (a) White
- (b) Yellow
- (c) Dark brown
- (d) Pink

**32.** Following are the steps involved in the experiment- 'To determine the percentage of water absorbed by raisins'. They are not in proper sequence. [1]

- I. Soak the raisins in fresh water.
- II. Weight dry raisins.
- III. Weigh soaked raisins.
- IV. Wipe out soaked raisins.

The correct sequence of steps is

- (a) I, II, III, IV
- (b) II, I, IV, III
- (c) II, I, III, IV
- (d) I, II, IV, III

**33.** During the course of an experiment, to determine the percentage of water absorbed by raisins, the raisins are weighed [1]

- (a) Every half an hour.
- (b) Every hour.
- (c) Once- only after completing the experiment.
- (d) Two times- Before soaking and after soaking for three hours.

34. The given figures illustrate binger fission in Amoeba in improper order.

[1]



The correct order is

- (a) III, IV, II, I
- (b) IV, III, II, I
- (c) II, III, IV, I
- (d) I, III, IV, II

35. The steps involved in observing a slide under a microscope are given below. They are not in proper sequence. [1]

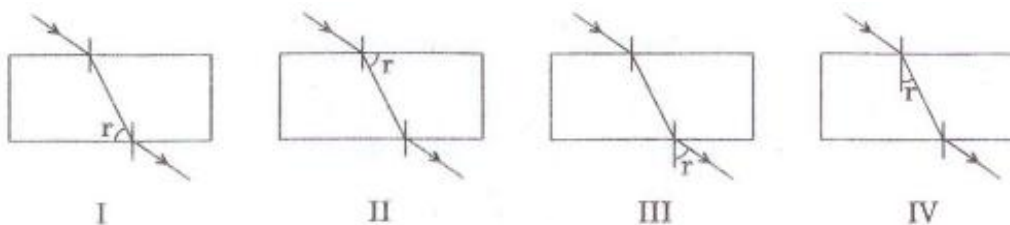
- I. Focus the object under high power of the microscope.
- II. Place the slide on the stage of the microscope.
- III. Arrange the mirror to reflect maximum light to the slide.
- IV. Focus the object under low power of the microscope.

The proper sequence of steps is

- (a) II, III, IV, I
- (b) I, II, III, IV
- (c) IV, III, II, I
- (d) III, I, II, IV

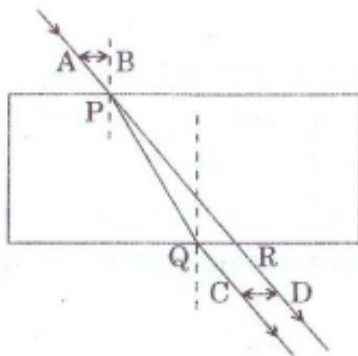
36. In which diagram the angle of refraction  $r$  has been correctly depicted?

[1]



- (a) I
- (b) II
- (c) III
- (d) IV

37. For a ray of light passing through a glass slab, the lateral displacement was correctly measured as: [1]



- (a) AB  
(b) PQ  
(c) CD  
(d) PR
38. Iron nails were dipped in an aqueous solution of copper sulphate. After about 30 minutes, it was observed that the colour of the solution changed from [1]  
(a) Colorless to light green.  
(b) Blue to light green  
(c) Blue to colourless.  
(d) Green to blue.
39. To find the focal length of a concave mirror, Sita should choose which one of the following [1]  
(a) A mirror holder and screen holder  
(b) A screen holder and a scale  
(c) A mirror holder, a screen holder and a scale  
(d) A screen, a mirror, holders for them and a scale
40. By using a convex lens, a student obtained a sharp image of his classroom window grill on a screen. In which direction should he move the lens to focus a distant tree instead of the grill? [1]  
(a) Towards the screen  
(b) Away from the screen  
(c) Very far away from the screen  
(d) Behind the screen



**41.** To determine the focal length of a convex lens by obtaining a sharp image of a distant object, the following steps were suggested which are not in proper sequence. [1]

- I. Hold the lens between the object and the screen.
- II. Adjust the position of the lens to form a sharp image.
- III. Select a suitable distant object.
- IV. Measure the distance between the lens and the screen.

The correct sequence of steps to determine the focal length of the lens is

- (a) III, I, II, IV
- (b) III, I, IV, II
- (c) III, IV, II, I
- (d) I, II, III, IV