

Goa Board
Class X Science
Term II
Sample Paper - 1

Total time: 3 hrs

Total marks: 90

General instructions:

1. The question paper comprises of **two sections, A and B**. You are to attempt both the sections.
2. All the questions of **Section-A** and **Section-B** are to be attempted separately.
3. Question numbers **1 to 3** in **Section - A** are **one mark** questions. These are to be answered in one word or one sentence.
4. Question numbers **4 to 6** in **section - A** are **two marks** questions, to be answered in about **30 words each**.
5. Question number **7 to 18** in **section-A** are **three marks** questions, to be answered in about **50 words**.
6. Question number **19 to 24** in **section-A** are **five marks** questions, to be answered in about **70 words**.
7. 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.
8. Question numbers **34 to 36** in **Section B** are questions based on practical skills and are two marks questions.

SECTION A

1. Why carbon forms strong bonds with other carbon atoms, hydrogen, oxygen, nitrogen or sulphur? [1]
2. An organism shows the capability to grow an outgrowth by dividing the specific site of the body using the process of mitosis. Name the process and an organism which performs this process. [1]
3. Name the part of eye responsible for conversion of light into electrical impulses. [1]
4. Write one property of hydrogen which makes it resemble with: [2]
(a) Alkali metals
(b) Halogen

5. [2]
 - (a) Define watershed management.
 - (b) What are the advantages of watershed management?
6. Why is the convex mirror used as a rear view mirror? [2]
7. [3]
 - (a) Where is copper-T placed?
 - (b) What will happen if the vas deferens in the male is blocked surgically?
8. [3]
 - (a) How does valency vary in a group on going from top to bottom?
 - (b) How does the number of valence electrons vary in a period on going from left to right and from top to bottom in a group?
9. A concave lens has focal length of 25 cm. At what distance should the object from the lens be placed such that it forms an image at 20 cm distance from the lens? Also, find the magnification produced by the lens. [3]
10. Give an explanation for the formation of a rainbow. [3]
11. [3]
 - (a) How are we able to see distant and nearby objects clearly?
 - (b) Which part of the eye helps in changing the curvature of lens?
 - (c) What is a blind spot?
12. How do you find the rough focal length of a convex lens? Is the same method applicable to a concave lens? [3]
13. On reaction with sodium hydroxide, X yielded sodium acetate and ethanol. [3]
 - (a) Give the IUPAC name of X.
 - (b) Name the reaction.
 - (c) Give a chemical reaction for the above reaction.
14. [3]
 - (a) How is the electronic configuration of an element related to its position in the Modern periodic table? Give one example.
 - (b) Why is nitrogen more electronegative than phosphorus?

15. We hear and read about female foeticide, which is really a wrong practice. In some families, be it rural or urban, females are tortured for giving birth to a girl child. They do not seem to understand the scientific reason behind the birth of a boy or a girl. In your opinion, the approach of the society towards mother in this regard is correct or not? Explain the scientific reason. [3]
16. [3]
(a) If a purple flowered pea plant (PP) is crossed with a white flowered pea plant (pp), will we have white flowered pea plant in F_1 generation? Why or why not?
(b) What do you mean by dominant and recessive trait?
17. Define the process of incineration. Why is it considered as the safe method of waste disposal? [3]
18. Why we must conserve our forests? List any two causes for deforestation taking place. [3]
19. What is meant by menstruation and menstrual cycle? Explain the process. [5]
20. [5]
(a) Why magnification is taken negative for real images and positive for virtual
(b) Why a convex mirror is used as rear-view mirror in vehicles?
(c) Power of convex lens is 4.5 D. Find its focal length.
21. [5]
(a) Define:
i. Centre of curvature of a spherical mirror
ii. Pole of a spherical mirror
(b) State the mirror formula and its magnification.
(c) Using the same, find the distance at which an object should be placed for getting a real and inverted image at 45 cm using a concave mirror of focal length 20 cm.
22. [5]
(a) What is Natural Selection? Explain.
(b) Why are thorns of Bougainvillea plant and a tendril of Passiflora plant considered homologous organs?
23. [5]
(a) Draw a neat labelled diagram of longitudinal section of flower.
(b) Write two points of difference between self and cross-pollination.

24. [5]
- (a) Which property of carbon leads to formation of large number of compounds? Define it.
- (b) What is the functional group in the following molecules?
- i. $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
- ii. $\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{OH}$
- (c) Which of the following formula represents a saturated hydrocarbon?
 C_nH_{2n} , $\text{C}_n\text{H}_{2n+1}$, $\text{C}_n\text{H}_{2n+2}$, $\text{C}_n\text{H}_{2n-2}$
- (d) What happens when methane is burnt in oxygen?
- (e) Why is the conversion of ethanol to ethanoic acid an oxidation reaction?

SECTION B

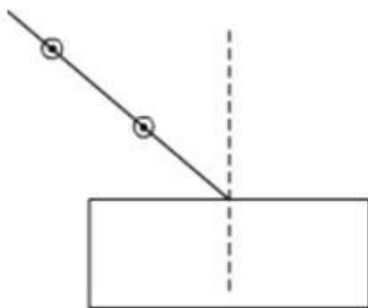
25. On reacting NaHCO_3 and acetic acid, the gas evolved turns [1]
- (a) Lime water milky
- (b) Lime water turns pinkish
- (c) Lime water turns dirty green
- (d) Lime water turns bluish green
26. Name the functional group of the product formed when ethanol reacts with ethanoic acid. [1]
- (a) Ester
- (b) Aldehyde
- (c) Ketone
- (d) Ether
27. Aldehydes give carboxylic acids on [1]
- (a) Reduction
- (b) Hydrogenation
- (c) Hydrolysis
- (d) Oxidation
28. Which is the bottom and swollen part of the carpel? [1]
- (a) Ovule
- (b) Style
- (c) Stigma
- (d) Ovary

29. Binary fission starts in an amoeba with the [1]

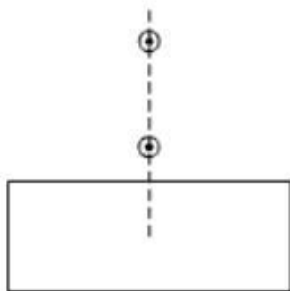
- (a) Constriction of its cell membrane
- (b) Elongation of its nucleus
- (c) Two amoebae come closer
- (d) Both (b) and (c)

30. Select from the following the best set-up for tracing the path of a ray of light through a rectangular glass slab [1]

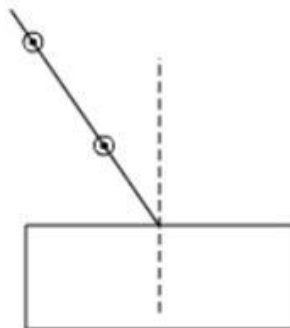
i.



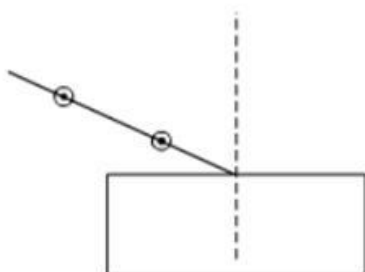
ii.



iii.



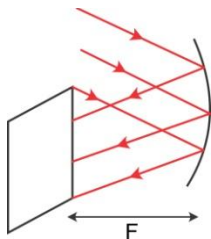
iv.



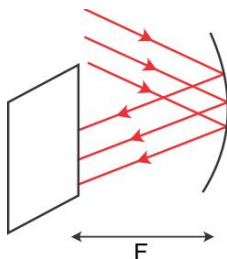
- (a) I
- (b) II
- (c) III
- (d) IV

31. The image formation, when rays from a distant object fall on a concave mirror is correctly depicted in the ray diagram [1]

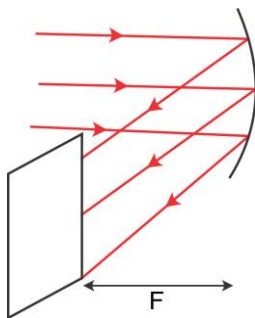
A.



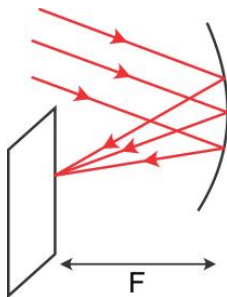
B.



C.



D.



- (a) A
- (b) B
- (c) C
- (d) D

32. Raisins absorb water by [1]

- (a) Exosmosis
- (b) Endosmosis
- (c) Plasmolysis
- (d) Diffusion

33. The process which is used to prepare soap is known as [1]

- (a) Saponification
- (b) Hydrolysis
- (c) Combustion
- (d) Decomposition

34. Monika has to determine the focal length of a concave mirror and a convex lens of focal length of about 15 cm each. She uses a distant tree as the object and obtains the sharp image of the tree, one by one on a screen. The distances l_1 and l_2 between the mirror/lens and the screen in the two cases and the nature of their respective images obtained on the screen are likely to be: [2]

- (a) (30 cm, 15 cm) and (erect, inverted)
- (b) (15 cm, 15 cm) and (inverted, inverted)
- (c) (15 cm, 30 cm) and (inverted, erect)
- (d) (30 cm, 30 cm) and (inverted, inverted)

35. The diagram which does not illustrate budding in the yeast is [2]



(A)



(B)



(C)



(D)

- (a) A
- (b) B
- (c) C
- (d) D

36. An organic compound 'A' on heating with conc. H_2SO_4 forms a compound 'B' which on addition of one mole of hydrogen in the presence of Nickel forms a compound 'C'. One mole of 'C' on combustion forms 2 moles of CO_2 and 3 moles of H_2O . Identify the compounds A, B and C and write the equations for the reactions involved. [2]