

Goa Board
Class X Science
Term II
Sample Paper – 10

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. Name the type of spherical mirror which [1]
(a) Has +ve focal length.
(b) Always forms a virtual image.
2. In which group of the periodic table would you place lithium having atomic number 3? [1]
3. "Save the Tiger" campaign is being over emphasized these days by our Government. What may be the possible reason? [1]
4. Give any two ways in which biodegradable substances would affect the environment. [2]
5. Stars twinkle at night but planets do not. Why? [2]

6. Both, carbon and silicon belong to group 14 of the periodic table. But the tendency to exhibit catenation in carbon is much more than in silicon. Explain. [2]
7. Explain briefly the concept of 3R's in the conservation of resources. [3]
8. [3]
- (a) Refractive indices of media A, B, C and D are given below:

Medium	Refractive Index
A	1.33
B	1.44
C	1.52
D	1.65

- In which of these four, is the speed of light maximum? Support your answer with reason. Find the refractive index of medium D with respect to medium A.
- (b) Mention two effects of atmospheric refraction of light.
9. [3]
- (a) Two thin lenses of power +3.5 D and -2.5 D are placed in contact with each other. Find the power and focal length of the lens combination.
- (b) A convex mirror used as a rearview mirror in a car has a radius of curvature of 3 m. If an approaching bus is located at a distance of 5 m from this mirror, how far its image appears in the mirror?
10. Explain refraction of light through a glass prism. [3]
11. Why does the sun appear white when it is overhead in the sky? [3]
- 12.
- (a) What were the achievements of Mendeleev's periodic table?
- (b) What were the basic properties of elements considered by Mendeleev for their classification in the periodic table? [3]
13. Define isomerism? Illustrate with one example. [3]
14. [3]
- (a) Why are Group I elements of periodic table called as alkali metals?
- (b) Nitrogen (Atomic number 7) and phosphorus (Atomic number 15) belong to the same group of the periodic table. Write the electronic configuration of these two elements. Which of these two is more electronegative? Why?

15. What is biological magnification? Will the levels of this magnification be different at different levels of the ecosystem? Where will the magnification be maximum? [3]
16. What is regeneration? Describe with the help of a neat diagram about regeneration in 'Planaria'. [3]
17. What are analogous organs? Explain with examples. [3]
18. Mrs. Kumar is pregnant for the last three months and she goes for regular check-up to her doctor. During her last visit, the doctor asked Mrs. Kumar to get an ultrasound done. Both Mr. and Mrs. Kumar went to a radiologist and got the ultrasound done. Once the ultrasound was over, Mr. Kumar asked the doctor whether the baby in the womb is a boy or a girl. [3]
 (a) What should the doctor reply to the couple?
 (b) Is it ethical to determine the sex of a child?
 (c) What should government do to discourage sex determination?
19. How many 'X' chromosomes are present in body cells of humans in a [5]
 (a) Male
 (b) Female?
 (c) Describe the role of sex chromosomes in deciding the sex of the child.
20. [5]
 (a) What type of spectacles should be worn by a person having the defect of myopia as well as hypermetropia?
 (b) What are rods and cones in the retina of an eye? Why our night vision is relatively poor compared to the night vision of an owl?
 (c) With the help of ray diagrams, show the formation of image by
 i. A myopic eye
 ii. correction of myopia by using an appropriate lens.
21. [5]
 (a) Find the size, nature and position of the image formed when an object of size 1 cm is placed at a distance of 15 cm from a concave mirror of focal length 10 cm.
 (b) In what way is the word AMBULANCE printed in front of the hospital vans? Why is it printed this way?
 (c) Why does a diamond sparkle?

22. The atomic radii of the element of second period are given below: [5]

Second period element	B	Be	O	N	Li	F	C
Atomic Radii (pm)	88	111	66	74	152	64	77

- Arrange these elements in decreasing order of their atomic radii.
- Are the elements now arranged in the pattern of a period in the periodic table?
- Name the element which has the (i) largest and (ii) smallest atomic number.
- From the above data, infer how the atomic size or atomic radius of the elements changes as we go from left to right in a period.
- Name one metal, one non-metal and a metalloid out of these elements.
- Why does atomic radius decreases as we move from left to right in a period?

23. What is meant by tissue culture? How is this technique performed? In which area, does this technique find its application? [5]

24. What is meant by menstruation and menstrual cycle? Explain the sexual cycle in females. [5]

SECTION B

25. A school laboratory has one large window. To find the focal length of a convex lens using one of the walls as the screen, the experiment may be performed [1]

- near the wall opposite to the window
- on the same wall as the window
- on the left side wall adjacent to the window
- on the right side wall adjacent to the window

26. During the experiment "to trace the path of ray of light passing through a glass prism," a student observed that in a particular case when $\angle i = \angle e$, the refracted ray in the prism will be [1]

- normal to the first refracting face
- normal to the second refracting face
- parallel to the base of the prism
- perpendicular to the base of the prism

27. The diagram showing daughter amoeba formed after binary fission is [1]



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

28. On adding sodium hydrogen carbonate to acetic acid, we immediately [1]

- (a) observe strong effervescence
- (b) hear hissing sound
- (c) observe brown fumes
- (d) notice formation of bubbles

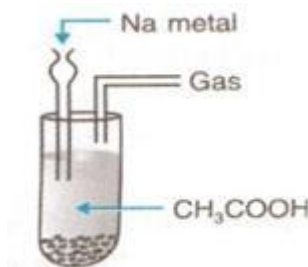
29. If pH paper is dipped into acetic acid solution, it will become [1]

- (a) Violet
- (b) Blue
- (c) Orangish red
- (d) Green

30. When acetic acid reacts with ethyl alcohol, we add conc. H_2SO_4 . It acts as ____ and the process is called _____. [1]

- (a) dehydrating agent, esterification
- (b) reducing agent, esterification
- (c) oxidizing agent, saponification
- (d) acid, esterification

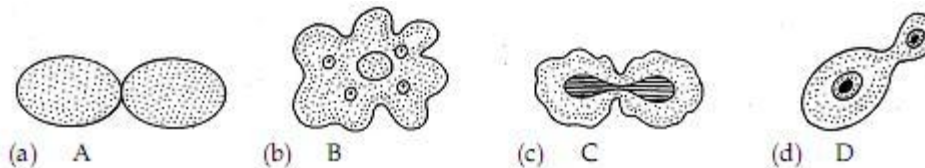
31. The gas evolved in the experiment shown here is [1]



- (a) H_2
- (b) O_2
- (c) CO
- (d) CO_2

32. Budding in yeast is illustrated by diagram

[1]



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

33. A student has to observe a permanent slide of binary fission in amoeba. Find the correct sequence of steps given below for focusing the object under a microscope. [1]

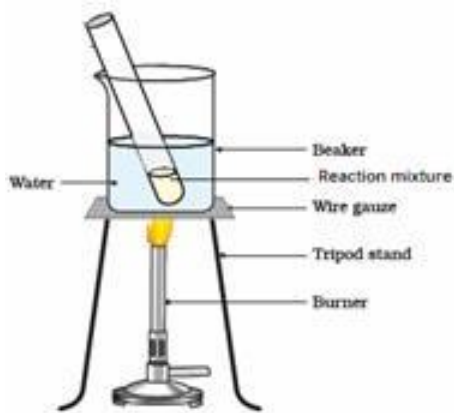
- (a) Place the slide on the stage, look through the eye-piece and adjust the mirror to get proper illumination.
- (b) Focus the slide sharp using fine adjustment screw.
- (c) Look through the eye-piece and raise the objective lens using coarse adjustment screw till the object is focussed.
- (d) Look through the eye-piece and move the slide till the object is visible.

- (a) d, c, b, a
- (b) a, b, d, c
- (c) a, d, c, b
- (d) a, c, d, b

34. You have potato, carrot, radish, sweet potato, tomato and ginger bought from the market in your jute bag. Identify two vegetables to represent the correct homologous structures. [2]

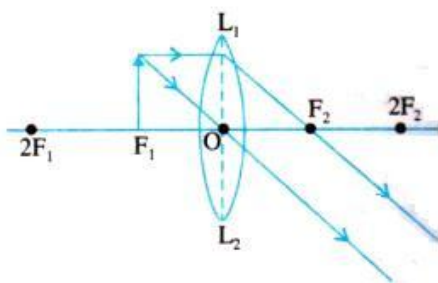
- (a) Potato and Tomato
- (b) Carrot and Tomato
- (c) Potato and Sweet Potato
- (d) Carrot and Radish

35. Ethanol is heated gently in a water bath as shown in the set-up. When potassium permanganate is added in excess, the pink color of potassium permanganate disappears due to the formation of which compound? Write the balanced chemical equation to support your answer. [2]

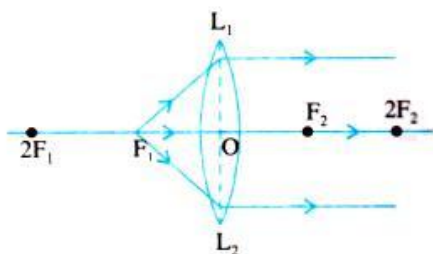


36. Identify the correct ray diagram drawn by a student. [2]

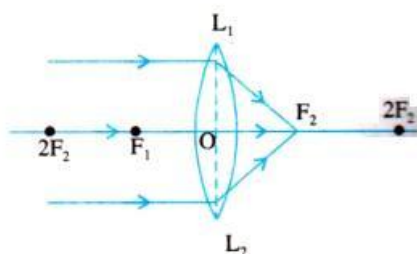
(a)



(b)



(c)



(d) All are correct