

**Goa Board**  
**Class X Science**  
**Term II**  
**Sample Paper - 2**

**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. Which bonding is mostly shown by carbon in its compounds? [1]
2. What happens to light when it passes through a prism? [1]
3. What is a monohybrid cross? [1]
4. The elements of the third period of the periodic table are given below: [2]  
Na, Mg, Al, Si, P, S, Cl, Ar  
(a) Which atom is bigger Na or Mg? Why?  
(b) Identify the most (i) metallic and (ii) non-metallic elements.
5. What is the importance of a watershed management system? [2]
6. How do ciliary muscles affect the functioning of eye? [2]

7. What do you mean by ozone depletion? Also, mention the cause of ozone depletion briefly. [3]
8. Briefly describe who all constitute the category stakeholders and why all of them are dependent on trees? [3]
- 9.
- (a) How does chemical reactivity of metals and non-metals vary on going down in a group?
  - (b) Is it possible to have an element having atomic number 1.5 placed between hydrogen and helium?
  - (c) Amongst lithium and potassium, which is larger in size and why? [3]
10. Dentists use concave mirrors to view teeth inside a patient's mouth. Why? Represent using a ray diagram. Why not a convex mirror is used? [3]
11. An object 2 cm high is placed at a distance of 16 cm from the mirror that produces a real image 3 cm high.
- i. Find the position of the image
  - ii. What is the focal length of the mirror? [3]
12. 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 is a little uncomfortable and 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'. [3]
- i. Name the eye defect Sania is suffering from?
  - ii. What are the two possible causes of her eye defect?
  - iii. What values are shown by Shreya and Sania?
- 13.
- (a) Why does white light undergo dispersion?
  - (b) What is the range of wavelength of visible light? [3]
- 14.
- (a) Why physical properties and chemical properties of an element are periodic functions of their atomic numbers?
  - (b) How does Modern Periodic Law justify one position for isotopes? [3]

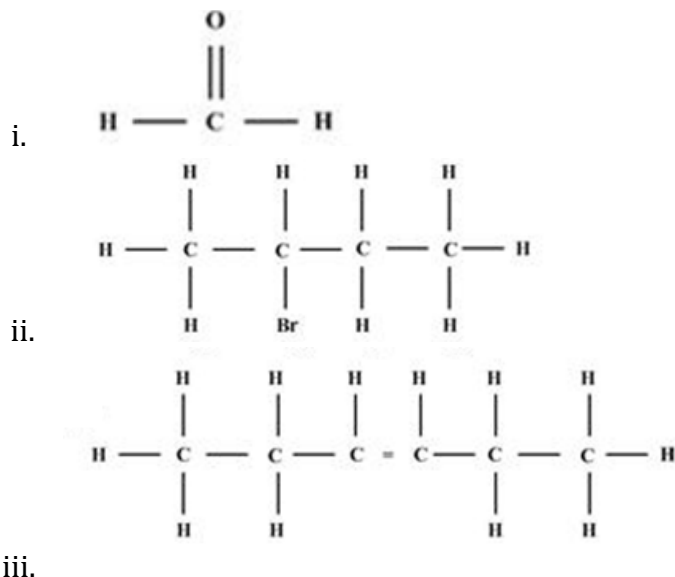
15.

(a) Write the structures of the following compounds. [3]

- i. Formic acid
- ii. 2-pentanone
- iii. Heptanal

(b) Give IUPAC name the following compounds?

(c)



16.

[3]

- (a) Why are testes placed outside the abdominal cavity in scrotum?
- (b) What is the aim of the mechanical barrier method of contraception? Give an example of this contraceptive.

17.

[3]

- (a) In a cross between a white flowered plant and a pink flowered plant, the  $F_1$  generation was found to be pink. On this basis, which are the dominant and the recessive traits?  
What is the ratio of the plants in  $F_2$  generation?
- (b) How can it be said that birds are closely related to reptiles?

18.

[3]

- (a) Why Mendel chose a pea plant for his experiments? Mention any two reasons.
- (b) Will experiences of a person during his life time be passed to the next generation?

- 19.** [5]
- (a) What is meant by the terms:
- Haploid
  - Diploid
- (b) How are chromosomes, DNA and genes related to each other?
- (c) How individuals with a particular trait may increase in a population by genetic drift?
- 20.** [5]
- (a) Draw a well labelled diagram of the female reproductive system.
- (b) Mention any two functions of the human ovary.
- 21.** [5]
- (a) Why in a molecule of nitrogen, two atoms are joined by a triple bond?
- (b) Give three points to distinguish between saturated and unsaturated hydrocarbons.
- 22.** [5]
- (a) How are image distance, object distance and focal length of a lens related to each other? Why the focal length of convex lens is considered positive and that of a concave lens is considered negative?
- (b) An object is placed at a distance of 20 cm from a convex lens of radius of curvature of 20 cm. Find the nature, position and size of the image.
- 23.** [5]
- (a) With the help of a ray diagram, show that concave lens is a diverging lens?
- (b) Represent using a ray diagram, how the defect of hypermetropia can be corrected.
- (c) What does negative magnification mean?
- 24.** [5]
- (a) With the help of an example, explain how "Genes control characteristics or traits".
- (b) Give two examples where environmental factors govern sex determination.

**SECTION B**

25. Three students measured the focal length of a convex lens using parallel rays from a distant object. All of them measured the distance between the lens and the inverted image on screen. While shifting the lens slowly towards the object, 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 still larger blurred image on the screen and labeled the distance as  $f_3$ .

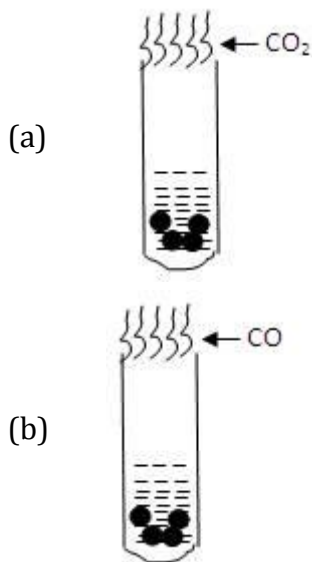
The relation likely to be is: [1]

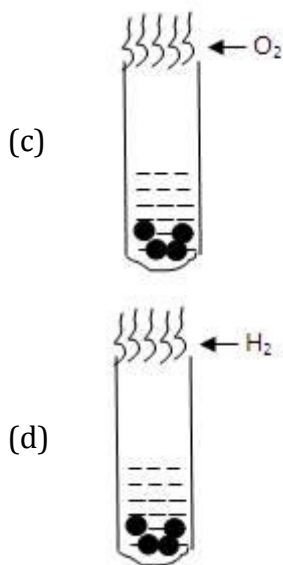
- (a)  $f_1 = f_2 = f_3$
- (b)  $f_1 < f_2$  and  $f_3$
- (c)  $f_3 > f_2 > f_1$
- (d)  $f_1 < f_2$  and  $f_1 = f_3$

26. Three students X, Y and Z are finding the focal length of the given concave mirror by obtaining the image of the object selected by them. X obtains the image of the grill of the nearest window of the lab. Y obtains the image of a white painted building near the lab and Z obtains a point size image of the sun. The most correct value of the focal length is obtained by: [1]

- (a) X
- (b) Y
- (c) Z
- (d) X and Y both

27. Acetic acid reacts with zinc in all the test tubes. A pop sound is heard when a burning match stick is brought near the test tubes. Which test tube will produce this pop sound? [1]

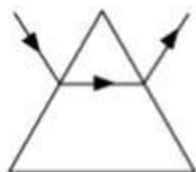




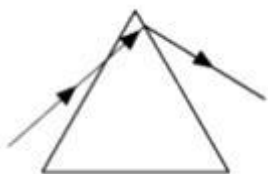
28. Fragmentation is common in [1]  
 (a) Planaria  
 (b) Hydra  
 (c) Spirogyra  
 (d) Rose
29. 5 gm of raisins were placed in distilled water for 24 hours. The weight of soaked raisins, after 24 hours, was found to be 7 gm. The correct percentage of water absorbed by the raisins is [1]  
 (a) 20%  
 (b) 25%  
 (c) 40%  
 (d) 45%
30. Unsaturated carbon compounds on combustion give [1]  
 (a) Yellow sooty flame  
 (b) Intense white flame  
 (c) Green flame  
 (d) Clean blue flame
31. Aldehydes and ketones have [1]  
 (a) Carbonyl group  
 (b) Nitro group  
 (c) Amide group  
 (d) Hydroxyl group

32. When ethanol is heated at 443 K with excess concentrated sulphuric acid, it gives [1]
- Ethanoic acid
  - Ethyl ethanoate
  - Ethene
  - Methanoic acid
33. A student sowed two pieces of potato (A) with eye, (B) without eye. In which case, the plant will grow [1]
- A
  - B
  - Both
  - None
34. While performing the experiment to trace the path of a ray of light passing through a glass prism, four students marked the incident ray and the emergent ray in their diagrams in the manner shown below. [2]

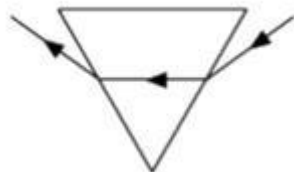
(I)



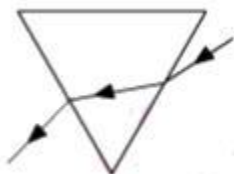
(II)



(III)



(IV)



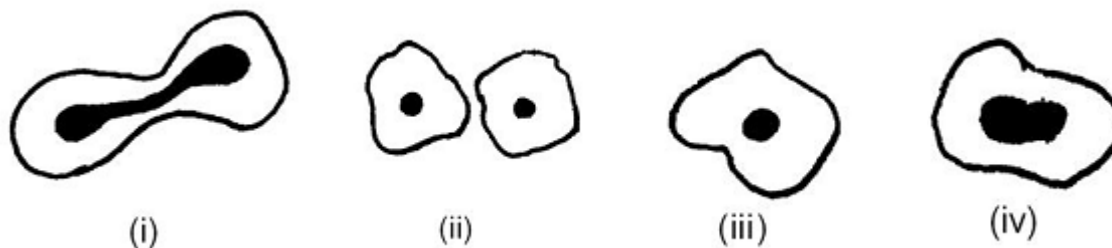
Which one is correct?

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

35. The following figure illustrates binary fission in Amoeba in an incorrect sequence.

The correct sequence is:

[2]



- (a) i, iii, iv, ii
- (b) iii, iv, i, ii
- (c) iv, iii, ii, i
- (d) iii, iv, ii, i

36.

- (a) State the role of concentrated sulphuric acid in esterification reaction.
- (b) Write one use of esters.

[2]