

# Class 10 Science test paper (unsolved)

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## Section 1

1. Why is it necessary to conserve our environment? (1)
2. Name two traditional system of water harvesting. (2)
3. Why can the wings of a bird and wings of a bat not be considered as homologous? (2)
4. A student sitting in the last row cannot read clearly the letters written on the blackboard. What could be the defect of vision the student is suffering from? Suggest the type of lens needed to correct his vision (2)
5. Give reason for the following (2)
  - i. Lithium (3) and sodium (11) are considered as active metals
  - ii. Potassium (19) is more reactive than sodium (11)
6. What is the role of seminal vesicles and prostate glands in male reproductive system? (2)
7. (a) If the earth has no atmosphere, what change would be observed in the length of the day? Give reason.  
(b) When two prisms in contact, inverted to each other, receive white light, what color of light will emerge out?
8. (a) If the earth has no atmosphere, what change would be observed in the length of day? Give reason (2)  
(b) When two prisms in contacts, inverted to each other, receive while light, what color of light will emerge out?
9. Draw the image formation by a concave mirror of focal length 15 cm for the following positions of objects (diagrams may not be drawn to the scale). Indicate the nature and relative size of the image (2)
  - i) Object is placed at 30 cm from the mirror
  - ii) Object is placed at 10 cm from the mirror
10. Ethanol an excellent solvent is used in medicines and an important chemical compound involved in the synthesis of many chemical compounds. However in spite of its benefits to man, its impact on social behavior has always been questioned. Media has often shows an abnormal behavior of people while drunk. It is considered as a curse in the lives of those who are addicted to alcohol. Alcoholic people are not only lowering their metabolism but also affecting central nervous system. They are also a threat to the life of others. Anger and rude behavior are some of its ill effects (3)
  - i) Comments on the statement – ‘Production of alcohol should be banned’. Give three valid reasons to justify
  - ii) As a student what initiative would you take a common concern of ‘Save life, do not drink’? Give two suggestions

11. Why do we say that the flow of energy in the ecosystem is unidirectional? What happens when a food chain gets shortened? (3)
12. How far should an object be placed from a convex lens of focal length 20 cm to obtain its image at a distance of 30 cm from the lens? What will be the height of the image if the object is 6cm tall? (3)
13. Give reason (3)
1. Fluorine is more reactive than chlorine
  2. Neon has zero valency
  3. Magnesium is a metal
14. Why is it necessary for judicious use of fossil fuels? (3)
15. Describe the principle of inheritance as explained by Mendel. (3)
16. a) Give two characteristics of light refracted through a rectangular glass slab  
 b) Refractive indices of media A, B, C and D are given below (3)
- |   |      |
|---|------|
| A | 1.33 |
| B | 1.52 |
| C | 1.44 |
| D | 1.65 |
- In which of the four media is the speed of light (i) maximum and (ii) minimum?
17. i) Give two examples of organism in which environmental factors regulate sex determination  
 ii) By comparing the similarity of nucleotide sequence in DNA of different kind organism evolutionary relationships can be established (3)
- a) Arrange the following accordingly of their evolutionary closeness  
 Cockroach, Mango, Gorilla, fish
  - b) Who's DNA among the above do you think is the most similar to that of humans?
18. How do homologous organs differ from analogous organs? Explain with an example. (3)
19. What are sexually transmitted diseases? Give four examples of these diseases and also give their common symptoms. (3)
20. A. Write the Name and the structure of parent alkane of methanol. What happens when methanol is heated with alkaline  $\text{KMnO}_4$  solution? Name the main product obtained by the reaction of methanol and methanoic acid in presence of conc  $\text{H}_2\text{SO}_4$ .  
 B. How will you distinguish between ethanol and acetic acid in your lab? Give chemical reaction (5 marks)
21. a) i) Arrange F, N, Be in increasing order of atomic number  
 ii) Where are isobars placed in the modern periodic table and why?  
 iii) An element has atomic number 16. Is it metal or nonmetal why?  
 b) Why do we classify elements?

d) Write the formula of the product formed when element A with atomic number 11 combines with element 'B' (9). What is the nature of bond formed?

(5 marks)

22. List the new Cartesian sign conventions for reflection of light by spherical mirrors. Draw a diagram and apply these conventions for calculating the focal length and nature of the spherical mirror which forms  $\frac{1}{3}$  times magnified virtual image of an object placed 18cm in front of it

(5 marks)

23. a) How does refraction takes place in the atmosphere? Why do stars twinkle but not the planets?

b) State any two effect of atmospheric refraction on the sun as observed from the earth

(5 marks)

24. What is the significance of fertilization? enumerate the method of fertilization in the flowering plant (5 marks)

25. How the sex of new born is determined in humans? Explain with the help of a diagram

(5 marks)

## Section B

### One Marks Questions

26. A student while observing the properties of acetic acid would report that this smells like

- (a) vinegar and turns red litmus blue
- (b) rotten eggs and turns red litmus blue
- (c) vinegar and turns blue litmus red
- (d) rotten eggs and turns blue litmus red

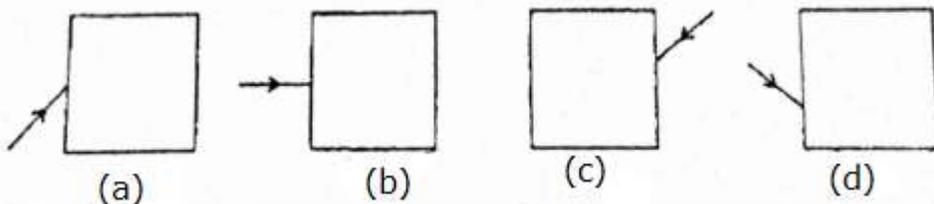
27. Saponification is an

- (a) endothermic process
- (b) exothermic process
- (c) neutralization reaction
- (d) acidic hydrolysis

28. In hard water

- (a) Hydrophobic portion of soap is trapped due to scum
- (b) Hydrophilic portion of soap is trapped due to scum
- (c) Hydrophilic portion of soap is free
- (d) Hydrophilic portion of soap makes it not suitable for washing

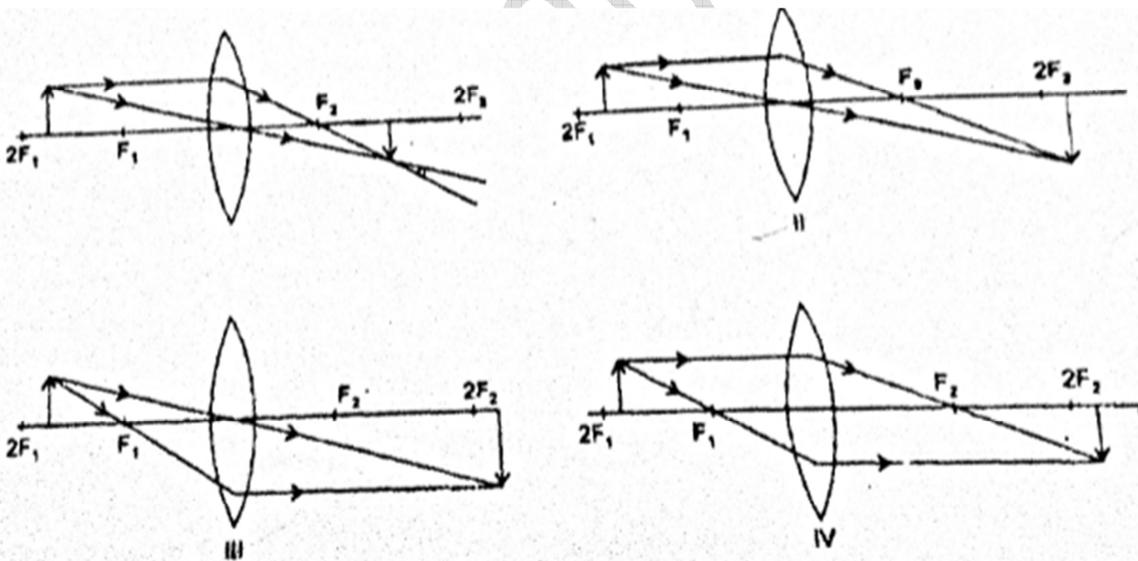
29. In which of the following will a student observe a ray of light passing through the slab undeviated?



30. A student traces the path of a ray of light passing through a triangular glass prism for the angle of incidence as  $30^\circ$ . What can be the measure of angle of emergence at the minimum deviation condition of the prism?

- (a)  $16^\circ$
- (b)  $19^\circ$
- (c)  $24^\circ$
- (d)  $30^\circ$

31. Select the correct diagrams for the location of image formed by a convex lens when the object is placed between  $F$  and  $2F$



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

32. In the process of binary fission:

- (a) Nucleus divides first followed by division of cytoplasm
- (b) Cytoplasm divides first followed by the division of nucleus
- (c) Both nucleus and cytoplasm divides simultaneously

- (d) Cell protrudes followed by the division of nucleus.
- 33.** The observation that the structures found in the flippers of dolphins and whales are similar to that found in human hands is evidence of a common ancestor based on
- (a) Adaptation
  - (b) Homologous structure
  - (c) Behavior
  - (d) Analogous structure
- 34.** The seed of angiosperms forms from the
- (a) Ovary
  - (b) Carpel
  - (c) Ovule
  - (d) Peduncle

Two marks questions

- 35.** Why should we measure length of immediately? Is distilled water hard or soft water? Why?
- 36.** How will you distinguish between concave and convex mirror?
- 37.** Differentiate between binary fission and multiple fission.