Class 10-SA-1-TEST-3

Section A

1. Write the molecular formula of benzene and state the number of double bonds in its structure.
2. What is meant by cell division?
3. Name the 'trees' saved by Amrita Devi Bishnoi who sacrificed her life of their protection.
4. State 10% law? Explain with an example how energy flows through different trophic levels?
5. Which environmental problems are we facing today due to burning of fossil fuels?
6. Mention one similarity and one difference between the image formed by a plane mirror and convex mirror.
7. Define analogous organs. Give one example.
8. Detergents are the best products for cleaning clothes explain why?
9. Write the molecular and structural formula of ethanol. Write its reaction with cone. H_2SO_4 at 443k. Write any one important use of ethanol.
10. The atomic number of elements X, Y and Z are 9, 12, 16 respectively. Give reason for your answer in each use.
    a. Identify the element with seven electrons in the outer most shell.
    b. Identify the element that would tend to lose 2 electrons.
    c. Identify the element that would tend to gain 2 electrons.

11. Name the reaction that takes place between methane and chlorine. Why is it given that name? Give the relevant chemical equation.
12. The government of India legalized Medical termination of pregnancy in 1971 to remove the unwanted pregnancies. But in India it is being misused to kill the female fetuses after finding the sex of the fetus through different devices like Ultrasound, Sonography etc. Suggest three measures to educate the society to check/prevent female Foeticide.
13. Write three advantage of sexual reproduction over asexual reproduction.
14. If a pure tall tea plant is crossed with a pure dwarf pea plant, then in F1 generation only tall plants appear.
    a. What happens to the traits of the dwarf appear.
    b. In the second generation, the dwarf trait reappears. Why?
15. a. Define Power of a lens.

    b. The image of an object formed by a convex lens is of the same size an the object. If the image is formed at a distance of 50cm from the lens, at what distance from the lens is the object placed? Find the focal length and power of the lens used.

17. a. Show the focus of a concave mirror with the help of a neat ray diagram.

    b. Explain why concave mirror is used as shaving mirror?

    c. Explain why convex mirrors are used as rear view mirror in vehicles?

18. a. One half of a convex lens is covered with a black paper.

    Will such a lens produce an image of the complete object?

    Support your answer with a ray diagram.

b. An object is held 25 cm away from a converging lens of focal length 10cm. Calculate the position of the image formed.

19. List three advantages of different ancient water harvesting techniques Developed in various parts of India.

20. a. What are covalent bonds? Write the type of covalent bond present in O_2 and N_2 molecules.

b. Give the electron dot structures of the following molecules.

a. H_2S b. NH_3 c. CO_2

21. a. In which form the traits are transferred from parent to the offspring?

b. Mention the two processes that essentially occur in sexual reproduction.

c. How the number of chromosome is retained in a species?

22. a. What is meant by the term genetics?

b. Name the plant did Mendel performed its experiment?

c. In Mendel's theory what is meant by the term factors.

d. What are genes and where are they located?

23. Draw the ray diagram in each case to show the position, nature of image Formed when the object is placed.

a. At the center of curvature of concave mirror.

b. Within focal length of a convex lens.

c. Between Pole and Focus of concave mirror.

d. In front of convex mirror.

e. In front of concave lens.

24. State the Snell's law of refraction and express it mathematically. Using lens formula, find the position of image, its nature, and magnification formed

by a convex lens of focal length 20cm, when object is at 18cm from it. Also draw the ray diagram to show image formation (not to scale)

Section-B

25. On adding a drop of given solution on a pH paper a student noticed that the pH paper turned orange from this observation it was inferred that the given solution was:

a. Acetic acid b. dil. NaOH

c. dil.HCL d. dil.$NaHO_3$

26. To prepare soap a student was given vegetable oil and lye. Lye is ……

a. 10% solution of Na0H

b. 10% solution of K0H

c. 5% solution of caustic soda

d. 20% solution of Na0H

27. The chemical nature of soap is:

a. Neutral b. Acidic c. Basic d. Amphoteric

28. The breaking down of oily dirt into tiny droplets by the action of soap is called:

a. decomposition b. displacement

c. dehydration d. emulsification

29. A student was asked to draw diagram for the formation of image of a distant object by a convex lens. He would show image:

a. at the focal plane of lens.

b. away from focal plane of lens.

c. before the focal plane of lens.

d. at any position before the lens.

30. A student has to do the experiment on finding the focal length of a given convex lens by using a distant object. He can do his experiment it he is made available.

a. a lamp and screen
b. a scale and screen
c. a lamp and scale
d. a screen

31. During the experiment of tracing the path of ray of light through a glass slab when a student has to fix the pins to locate the emergent beam, he must fix the pins on the other side for which he should observe:

a. heads of pins on the other side of slab.
b. feet of pins on the other side of slab.
c. surface of the slab.
d. edge of the slab.

32. Similarly among analogous structure is due to

a. Adaptation to the same environment.
b. Common evolutionary origin
c. Random chance
d. None of the above