



UNIVERSAL EDUCATION CENTRE

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Time – 3 Hours

SCIENCE 10TH

M.M. 90

- (i) Question numbers **1 to 4** in **Section-A** are **one mark** questions. These are to be answered in **one word** or in **one sentence**.
- (ii) Question numbers **5 to 11** in **Section-A** are **two marks** questions. These are to be answered in about **30 words** each.
- (iii) Question numbers **12 to 23** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each.
- (iv) Question numbers **24 to 27** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
- (v) Question numbers **28 to 43** 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.

SECTION-A

1. Name the functional group present in CH_3CHO .
2. Mention the role of pupil in a human eye.
3. Which chemical is used in fire extinguishers ? How is it harmful?
4. Pick the non-biodegradable substance from the following : Animal bones, wool, paper, glass.
5. (a) State modern periodic law.
(b) How does the electro negativity changes as we move from left to right across a period ? Give reason for your answer.
6. (a) State the similarity in the electronic configuration of all the elements present in Group 1 of the periodic table.
(b) An element has atomic number 3. To which period of the periodic table does it belong ? Give reason for your answer.
7. Which parts/organs of the human reproductive system perform the following functions :
(a) Site of fertilization (b) Production of ovum
8. State a difference between Unisexual and Bisexual flowers.
9. Two lenses are of power + 6.0 D and -1.5 D. Find the focal length and also mention nature of each lens.
10. During sunrise and sunset sky appears red while during the day it appears blue. Explain these natural phenomenon.
11. (a) A beam of white light splits when it passes through a prism. Name this phenomenon and give its reason.
(b) List the colours into which it splits in the decreasing order of their bending on emergence from prism.
12. List any two measures would you take to conserve electricity at your house so that consumption of fossil fuel is reduced.
13. "Narmada Bachao Aandolan" raised issues of how constructions of big dams create environmental problems. Discuss two such issues.
14. (a) Write a test to distinguish between Ethanol and Ethanoic acid.
(b) Name the second member of homologous series of alkenes.
(c) Explain why detergents are more effective cleansing agents in hard water?

15.	Group →	1	2	13	14	15	16	17	18
	Period ↓								
	3	X	B	C	D	E			
	4	Y							
	5	Z							

Using the given part of the periodic table, answer the following questions with reason –

- (a) Name the element having smallest atomic size.
- (b) Write electronic configuration of element E.

- (c) Identify the elements which have similar physical and chemical properties as the element Y.
16. (a) Differentiate between reproduction binary and multiple fission. Name an organism that reproduces by Multiple fission.
 (b) Vegetative propagation is beneficial to plants that are propagated asexually. Give two advantages.
17. In a cross between plants with pink flowers and plants with white flowers the off springs of F1 generation all had pink flowers. When the F1 generation was self – crossed, it was observed in the F2 generation that out of 100, 75 flowers were pink. Make a cross and answer the following:
 (a) What are the genotypes of the F1 progeny ?
 (b) What is the ratio of Pink: White flowers in the F2 generation ?
18. (a) Explain geographical isolation.
 (b) Giving reasons state whether the following are Homologous or Analogous organs :
 (a) Wings of birds and butterflies
 (b) Root of money plant and sweet potato bulbs
19. Look at the given picture and write its name after identifying it. Also give its significance



20. We wish to obtain an erect image of an object, using either a concave mirror or a convex mirror both of focal length 15 cm.
 (a) What should be the range of distance of the object from the mirror, in each case ?
 (b) Is the image larger or smaller than the object in each case ?
 (c) Draw a ray diagram to show the image formation in each case.
21. Define the following terms for a lens with the help of diagram.
 (a) Optical centre (b) Principal axis (c) Principal focus
22. A person cannot see objects beyond 1.2 m distinctly. Name the defect of vision he is suffering from. What is the cause for this defect? With the help of the ray diagram show how this defect can be corrected.
23. State in brief the role of human male reproductive system. Why is it called the „urinogenital“ system ?
24. (a) Why do covalent compounds have low melting and boiling points?
 (b) Draw electron dot structure for a molecule of Ammonia having the formula NH₃.
 (c) Complete the reaction given below and name the new substance formed in the reaction

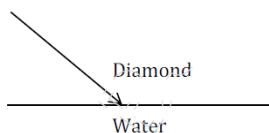
$$\text{conc CH}_3\text{CH}_2\text{OH} \xrightarrow{\text{H}_2\text{SO}_4}$$
 What is the role of acid in the above chemical change ?
 (d) Name two properties of Carbon which lead to a formation of a large number of carbon compounds.

OR

- (a) Define catenation and name an element other than carbon which shows this phenomenon to some extent.
 (b) Mention any two uses of Ethanol.
 (c) Draw electron dot structure for a molecule of methane.
 (d) Complete the given reaction and name the products obtained : $\text{Na} + \text{CH}_3\text{CH}_2\text{OH} \longrightarrow$
25. (a) Give reasons :
 (i) Wind acts as a pollinating agent
 (ii) Variation is essential and beneficial to a species
 (iii) Uses of condoms prevents pregnancy
 (b) Draw a neat and labeled diagram of human male reproductive system (at least 4 labels).

OR

- (a) What is Menstruation? Explain why it occurs.
 (b) Draw a neat and labeled diagram of human female reproductive system.
 (c) How does embryo get nutrition in mother's womb.
26. (a) Differentiate between reflection and refraction.
 (b) A ray of light is incident on the interface separating diamond and water. Given that refractive index of diamond and water with respect to air are 2.42 and 1.33 respectively.

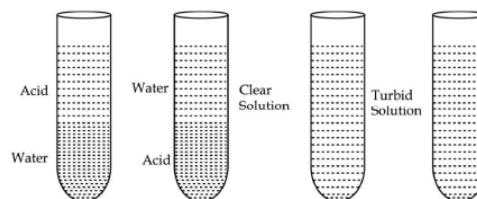


Complete the diagram by showing refracted ray and mark angles of incidence and refraction.

- (c) Light enters from air to glass having refractive index 1.50. What is the speed of light in the glass? The speed of light in vacuum is 3×10^8 m/s.

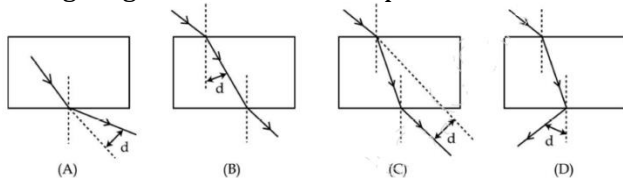
OR

- (a) Refractive index of water is $4/3$. What does it mean ?
 (b) An object, 4.0 cm in size, is placed at 25.0 cm in front of a concave mirror of focal length 15.0 cm. At what distance from the mirror should a screen be placed in order to obtain a sharp image? Find the nature and the size of the image.
 (c) List two uses each of concave and convex mirror.
27. (i) Differentiate between saturated and unsaturated carbon compound.
 (ii) Write one example of each of such compounds and give their structural formula.
 (iii) Draw electron dot structure of methane and ethane.
28. Colour of zinc metal is :
 (a) reddish brown (b) dark grey (c) blackish grey (d) silver
29. What happens when aluminium metal is dropped in copper sulphate solution ?
 (a) No reaction takes place
 (b) The colour of the solution changes from blue to colourless
 (c) The colour of the solution changes from blue to light green
 (d) The colour of the solution changes from blue to dark green
30. Four different students recorded their observations as tabulated below for studying the chemical property of acetic acid when it is added to sodium bicarbonate. Student Observation
 A No change takes place. B A gas is evolved very slowly
 C A brisk effervescence is observed D An insoluble substance is formed
 who recorded the correct observation ?
 (a) A (b) B (c) C (d) D
31. Odour of acetic acid is like :
 (a) vinegar (b) orange (c) rotten egg (d) scent
32. When dil. Ethanoic acid was added to water and the mixture was shaken for some time, then after some time the correct observation would be :



- (a) Water formed a separate layer at the bottom (b) Ethanoic acid formed a separate layer at the bottom
 (c) The mixture became white in color (d) A clear solution was formed
33. A student mounts a spherical mirror on a mirror stand and places the stand along a metre scale at 10 cm mark. In front of spherical mirror he mounts a white screen and moves it back and forth along the meter scale, till a highly sharp, well defined image of a distance building is formed on the screen, now at 25.5 cm mark of the metre scale. What is the focal length of the mirror ?
 (a) 10 cm (b) 22.5 cm (c) 17.25 cm (d) 15.5 cm
34. The following steps are to be followed while measuring the focal length of a lens. But these steps are not given in the correct sequence :
 (i) Measure the distance between the lens and the screen
 (ii) Adjust the position of the lens to form a sharp image
 (iii) Select a suitable distant object.
 (iv) Hold the lens between the object and the screen.
 Select the correct sequence of these steps :
 (a) (iii), (i), (iv), (ii) (b) (iii), (i), (ii), (iv)
 (c) (iii), (iv), (ii), (i) (d) (i), (ii), (iv), (iii)

35. In order to determine the focal length of a concave mirror by obtaining the image of distant object on screen, the position of screen should be :
 (a) parallel to plane of concave mirror. (b) perpendicular to plane of concave mirror
 (c) inclined at an angle 60° to plane of mirror (d) in any direction with respect to the plane of concave mirror.
36. In the following diagrams, the lateral displacement is correctly marked in :



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

37. Four students took observations in tracing the path of light through glass slab for the given angle of incidence. They measured angles of refraction and emergence from their observations given in the table below. Select the student who performed the experiment in the correct manner –

	i	r	e
Student A (i)	40°	47°	29°
(ii)	50°	58°	30°
Student B (i)	60°	35°	80°
(ii)	30°	19°	0°
Student C (i)	30°	35°	0°
(ii)	45°	45°	45°
Student D (i)	40°	25°	41°
(ii)	50°	31°	51°

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

38. Daughter cells produced as a result of asexual reproduction in amoeba are :
 (a) exact copies of parent cell (b) may or may not be exact copies
 (c) dissimilar to parent cell (d) one is like and the other is unlike the parent cell
39. The sequence shown below show the stages of :



- (a) spore formation in Amoeba (b) formation of bud in Amoeba
 (c) formation of gametes in Amoeba (d) formation of daughter cells in Amoeba.

40. The following sequence shows the stages in budding in yeast but these steps are not in right order:



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

41. The protuberance or a bulge formed due to repeated cell division in yeast is :

- (a) node (b) daughter cell (c) spore (d) bud

42. Weight of dry raisins = x g , Weight of soaked raisins = y g

The correct formula to determine of water absorbed by raisins would be –

- (a) $\frac{x-y}{y} \times 100$ (b) $\frac{y-x}{y} \times 100$ (c) $\frac{x}{x-y} \times 100$ (d) $\frac{y}{x-y} \times 100$

43. A student took 50 mL of distilled water in two beakers A and B and soaked 5g of raisins in each. He kept A at a temperature of 15°C and B at a temperature of 30°C . Percentage of water absorbed by raisins would be :

- (a) more in A than in B (b) more in B than in A
 (c) equal in both the beakers (d) twice in A than in B.

ALL THE BEST