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UNIVERSAL EDUCATION CENTRE

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SCIENCE 10TH

(i)Question numbers **1** to **3** 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. Define the property of catenation of carbon.

2. A person can read a book clearly but cannot see distant objects distinctly. Name the defect of vision he is suffering from.

3. List two effects of Ozone depletion on health.

4. In the following food chain 40J of energy was available to the Hawks. How much energy would have been present in the plants ? Plants→ Rats→ Snakes→ Hawks

5. State the modern periodic law. How many groups and periods are there in the modern periodic table ?

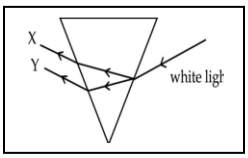
6. Out of the two elements X and Y which has bigger atomic radius ? Give reason to justify your answer.
(i) X has atomic number 18 and atomic mass 40 (ii) Y has atomic number 20 and atomic mass 40

7. Differentiate between the fission of uni-cellular organisms Leishmania and of Plasmodium.

8. Mention any four ways of asexual reproduction.

9. (a) Define Refraction.
(b) A ray of light incident an one face of a rectangular glass slab emerges from the opposite face of the slab parallel to the direction of the incident ray. Why does it happen so ?

10. When a beam of white light is passed through a triangular glass prism, it gets dispersed into its seven- colour components. Why do we get these colours ? In the given figure, the colour X and Y represent the extreme components of the spectrum. Identify X and Y.



11. How does the focal length of the eye lens of a normal human eye change while seeing :
(i) a nearby object, and (ii) a distant object (iii) Which part of eye bring about this change?

12. List any three advantages of water harvesting over water stored in ponds.

13. Although coal and petroleum are produced by degradation of biomass,yet we need to conserve them why ?

14. (a) Write chemical names of CH_3COCH_3, C_2H_5COOH.
(b) What happens when acetic acid and methanol react in presence of concentrated H_2SO_4 ? Write the reaction there in.

15. Given below is a part of the periodic table.

Li	Be	B	C	N	O	F
Na	Mg	AI	Si	P	S	C

As we move horizontally from left to right :-
(a) what happens to the atomic size? Justify your answer.
(b) what happens to the metallic character of the elements ?

16. (a) What are sexually transmitted diseases? Name any one which is caused by bacteria and one by viral infection. (b) Mention any two methods to avoid such diseases.

17. In human beings, the statistical probability of getting either a male or a female child is 50 : 50." Justify this statement with the help of a diagram.

18. Explain the homologous and analogous organs. Identify analogous and homologous organs amongst the following – wings of an insect, wings of a bat, forelimbs of lizard, forelimbs of bird.

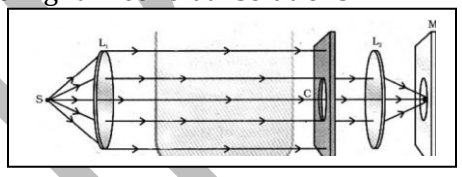
19. Define evolution. Why are traits acquired during life time of an individual not inherited ?

20. The refractive indices of alcohol and turpentine oil with respect to air are 1.36 and 1.47 respectively. Find the refractive index of turpentine oil with respect to alcohol. In which of the two medii the speed of light will be more ?

21. (a) Define power of a lens and give its units.

(b) A convex lens forms a real and inverted image of a needle at a distance of 50cm from it. Where is the needle placed in front of this lens if the image is equal to the size of the object ? Also find power of the lens.

22. The given figure shows an experimental set-up for observing a phenomenon of light in colloidal solutions.



S : Strong source of white light,
L1 : Convex lens to provide a parallel beam of light
L2 : Convex lens to converge light on the screen MN,
C : Circular hole in a cardboard,
T :Transparent glass tank.

A student dissolves about 200 g of sodium thiosulphate (hypo) in about 2L of clean water in the tank and adds about 1 to 2 mL conc. H_2SO_4 to the water. What would he observe after the source of light S is switched on –

(i) from the three sides of the glass tank ?

(ii) from the fourth side of the glass tank facing the circular hole ?

23. State in brief the role of human male reproductive system. Why is it called the 'urinogenital' system ?

24. (a) Mention any two reasons to explain the ability of carbon to form a large number of compounds.

(b) Differentiate between saturated and unsaturated hydrocarbons giving one example of each.

(c) Name any other element which like carbon can form compounds which have chains upto seven or eight atoms. How do these compounds differ from carbon compounds?

OR

(a) What are isomers ? Illustrate with one example.

(b) Write the chemical formula of Benzene and draw its structure.

(c) Write the name of unsaturated hydrocarbons which contains

(i) one or more double bonds

(ii) one or more triple bonds.

25. (a) Draw a diagram illustrating germination in a flowering plant and label – Stigma, Pollen grain, Male germ cell, Female germ cell. (b) Describe the process of germination.

OR

(a) Draw a diagram showing longitudinal section of a flower and label – Stigma, Ovary, Anther, Filament.

(b) How is the process of pollination different from fertilization?

26. (a) For a concave mirror draw ray diagram to show reflected ray for a ray incident – (i) at its pole (ii) at its centre of curvature (b) Which type of mirror is used by a dentist to examine teeth and why ?

(c) An object 5cm in length is held 25cm away from a converging lens of focal length 10cm. Find the position, size and nature of image. **OR**

(a) A point object is placed at a distance of 12cm from a convex lens on its principal axis. Its image is formed on the other side of the lens at a distance of 18cm from the lens. Find the focal length of the lens. Is the Image magnified? Justify your answer by drawing a diagram for the same.

(b) Draw ray diagrams to show image formation by a convex lens when object is at

(i) between focus and optical centre (ii) between F and 2F (iii) beyond 2F

27 . (i) Differentiate between saturated and unsaturated carbon compound.

(ii) Write one example of each of such compounds and give their structural formula.

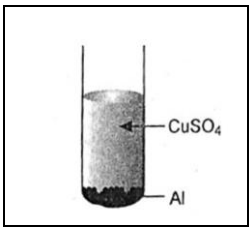
(iii) Draw electron dot structure of methane and ethane. **OR**

(i) Define Hydrocarbons.

(ii) Mention the general name of saturated hydrocarbons and the hydrocarbons containing double and triple bonds respectively.

(iii) What is an heteroatom in the context of hydrocarbons ?

(iv) Write names of any two functional groups and give their formula too.



SECTION – B

28. What happens in the test tube shown in the Fig. ?
(a) The colour of solution changes from blue to colourless
(b) No reaction takes place
(c) The colour of solution becomes light green and copper metal gets deposited on aluminium.
(d) The colour of solution becomes reddish brown.

29. When iron filings are added to ferrous sulphate solution the correct observation is
(a) ferrous sulphate solution becomes colourless.
(b) ferrous sulphate solution becomes blue in colour.
(c) No change in the colour of ferrous sulphate solution is observed.
(d) ferrous sulphate solution becomes light green colour.

30. A student adds a pinch of sodium hydrogen carbonate to acetic acid taken in a test tube and makes the following observations.
(A) A brisk effervescence is produced with the liberation of a colourless and odourless gas.
(B) The gas extinguishes the burning splinter.
(C) The gas burns with explosion when a burning candle is brought near it.
(D) The gas turns the lime water milky.
The observation which needs correction is.
(a) A (b) B (c) C (d) D

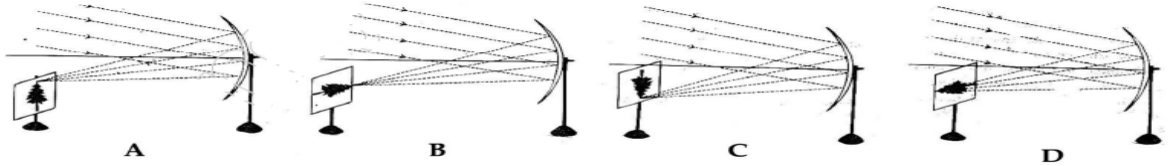
31. Four students observed the colour and odour of acetic acid and its reaction with sodium hydrogen carbonate. They tabulated their observation as given below.

Student	Colour of acetic acid	Odour of acetic acid	Action with sodium hydrogen carbonate
A	colourless	Fruity	Gas evolves without bubbles
B	colourless	Smell of Vinegar	Brisk effervescence
C	colourless	Odourless	gas evolves without bubbles
D	colourless	Smell of rotten egg	Brisk effervescence

The correct set of observation is that of student :
(a) A (b) B (c) C (d) D

32. 5 mL of ethanoic acid was taken in two test tubes I and II each. Blue and red litmus paper were dipped into test tube I and solid sodium hydrogen carbonate was added to test tube II.
The following observations were reported :
(A) Red litmus turned blue in I and no change was observed in II.
(B) Blue litmus turned red in I and brisk effervescence was observed in II.
(C) Red litmus turned blue in I and a gas of odour like vinegar evolved in II.
(D) Blue litmus turned red in I and a gas which supports combustion evolved in II.
The observation which correctly represents the characteristics of ethanoic acid is :
(a) A (b) B (c) C (d) D

33. Parallel rays, from the top of a distant tree, incident on a concave mirror, form an image on the screen. The correct diagram showing the image is



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

34. Three students A , B and C followed the procedure listed to find the focal length of a convex lens –
A : Kept the lens as well as screen on a stands to get a sharp image of a distant object on the screen.
B : Kept the lens on a stand and held the screen in hand for a sharp image.
C : Kept the lens in hand and moved it to get a sharp focus.
Who is correct ?
(a) A (b) B (c) C (d) All of them

35. A student performs an experiment to find the focal length of a convex lens. The image formed in this case would be :

(a) real and enlarged (b) virtual and enlarged (c) virtual and diminished (d) real and diminished

36. A student has to perform an experiment on tracing the path of a ray of light passing through a rectangular glass slab for different angles of incidence. Where should he place the Protractor?

(a) On the edge of the glass slab.

(b) Along the normal drawn on the edge of the glass slab at the point of incidence.

(c) The positioning does not matter. (d) Along the incident ray at the point of incidence

37. Which of the following figure represents the correct path of a ray through a rectangular glass slab ?

(a) I only (b) II only (c) III only (d) II and III both

38. Following diagrams were drawn by four students after observing a slide of binary fission in amoeba. The diagram correctly depicting a stage of binary fission in amoeba is :

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

39. After observing prepared slides illustrating binary fission in Amoeba, following figures were drawn by a student which may not be in proper sequence. The correct sequence of these figures is :

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

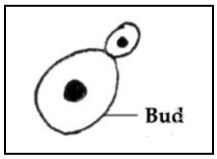
40. Identify the mistake in the following sketch of budding in yeast.

(a) Bud is shown to be smaller than parent cell.

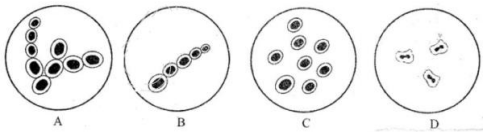
(b) Nuclei are present in both bud and parental cell.

(c) Both parent and bud are shown as single cells.

(d) Bud is wrongly labeled.



41. Given below are some of the diagrams drawn by students.



Which of the above figure does not show budding

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

42. Which of the following set of materials is required to set-up an experiment to determine the percentage of water absorbed by raisins?

(a) Raisins, beaker of water, blotting paper, weight box, balance.

(b) Raisins, beaker of water, blotting paper, weight box. (c) Raisins, beaker of water, blotting paper.

(d) Raisins, beaker of water.

43. If x represents weight of soaked raisins and y represents weight of dry raisins then by the Formula $\frac{x-y}{y} \times 100$ which is a way to calculate percentage of water it soak raisins, we get percentage of water.

(a) absorbed by raisins in hypertonic solution (b) absorbed by raisins in hypotonic solution

(c) lost by raisins in hypotonic solution (d) lost by raisins in hypertonic solution

ALL THE BEST