

Class: X
Subject: Science

Max Marks: 70
Time Allotted: 3 hrs

SECTION-A

- Q1.State two reason for calling fossil fuels as non-renewable sources of energy. (1)
- Q2. How would you find out whether the voltmeter has a zero error? (1)
- Q3. $\text{ZnO} + \text{C} \longrightarrow \text{Zn} + \text{CO}$, in this reaction predict the substance getting oxidized, substance getting reduced, oxidising agent and reducing agent (1)
- Q4. What is a nuclear waste? What are the hazards of nuclear waste to the living things? (2)
- Q5. How did the 'ChipkoAndolan' ultimately benefit the local population? Give any two benefits. (2)
- Q6. The resistance of a wire of length 250 m is 1 ohm. If the resistivity of material of wire is 1.6×10^{-8} ohm/m. Find the area of cross-section of wire. How much does the resistance change, if the diameter is doubled? (3)
- Q7. What is myopia? State the two causes of myopia. With the help of labelled ray diagrams show i) the eye defect myopia ii) correction of myopia using a lens. (3)
- Q8.a) A concave lens of focal length 15cm forms an image 10cm from the lens. How far is the object placed from the lens? What is the nature of image? Draw the ray diagram.
b) A doctor has prescribed a corrective lens of power +1.5D. Find the focal length of the lens. Is the prescribed lens diverging or converging? (3)
- Q9. a) Balance the following reaction : $\text{HNO}_3 + \text{H}_2\text{S} \longrightarrow \text{NO}_2 + \text{H}_2\text{O} + \text{S}$
b) Give one example of photodecomposition reaction.
c) Give an example of exothermic reaction. (3)
- Q10. a) Write electron dot structures for Na, O and Mg.
b) Show the formation of Na_2O and MgO by the transfer of electrons.
c) What are the ions present in these compounds? (3)
- Q11. a) Where are isobars placed in the modern periodic table and why?
b) An element has atomic number 16, Is it a metal or a non metal, why?
c) Arrange F, N, Be in the increasing order of size. (3)
- Q12. Define variation in relation to a species. Why is variation beneficial to the species? (3)
- Q13. Distinguish between acquired & inherited traits by giving one example of each. (3)
- Q14. Why is that fragmentation cannot be used as a method of reproduction for all multi-cellular organisms? (3)

Q15. Observe the given food chain and answer the questions: (3)

Plants → Grasshopper → Frog → Snake → Hawk

- (i) Suppose the sun emits 2000000 J of energy, and then calculate the amount of energy in joules, available with the grasshopper and the snake.
- (ii) State the law that you employed.

Q16. a) Write laws of refraction. Explain the same with the help of ray diagram, when a ray of light passes through a rectangular glass slab.

b) A pencil when dipped in water in a glass tumbler appears to be bent at the interface of air and water. Will the pencil appear to be bent to the same extent, if instead of water we use liquids like, kerosene or turpentine. Support your answer with reason.

c) If kerosene, turpentine and water is given. In which of these does the light travel fastest? Why? (5)

Q17. a) Draw magnetic lines of force around a straight current-carrying conductor. Which rule is used to detect the direction of field? State the rule.

b) How does the strength of magnetic field due to a current-carrying conductor depend upon?

i) distance from the conductor? ii) Current flowing through the conductor? (5)

Q18. What is chlor-alkali process and why it is so called? Give the equation of the reaction involved.

Give two uses of the each of the products formed during this process. (5)

Q19. a) Write the name and structure of the parent alkane of ethanol. What happens when ethanol is heated with alkaline KMnO_4 solution? Name the product formed when it reacts with acetic acid in presence of Conc. H_2SO_4 .

b) How will you distinguish ethanol and acetic acid in your laboratory? Give chemical reaction. (5)

Q20. Draw a neat labelled diagram of the female reproductive system. How does the embryo get its nutrition from the mother's body? What happens when the egg is not fertilized? (5)

Q21. Which is the structural and functional unit of nervous system? Describe with the help of a diagram. (5)

SECTION-B

Practical Based Questions

Q22. a) Will current flow more easily through a thick wire or a thin wire of same material?

b) Let the resistance of an electrical component remain constant while potential difference across the two ends of the component decreases to half its former value. What change will occur in the current through it? (2)

Q23. What is an electromagnet? How is it used in a scrapyard? How is strength of an electromagnet increased? On what principle is it based? (2)

- Q24. If you take Zn, Cu, Ag and Al metals separately in four test tubes I,II,III and IV respectively, then you add 10 ml of freshly prepared ferrous sulphate solution in each test tube, what would you observe and why? (2)
- Q25. What will be your observation if you add baking soda to acetic acid. Give the equation for the reaction and how will test the gas produced during the reaction? (2)
- Q26. What is meant by radical and plumule? What are the functions of plumule and radical? (2)
- Q27. Name any two adaptations in a green leaf for photosynthesis. (2)
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