

Class: X
Subject: Science

Max Marks: 80
Time Allotted: 3 hrs

Section-A

Answer the following questions:

- Q1 What is the pattern of field lines inside a solenoid? What do they indicate? (1)
- Q2 A given length of a wire is doubled on itself and this process is repeated once again. By what factor does the resistance of the wire change? (2)
- Q3 Why is sodium hydrogen carbonate an essential ingredient in antacids? (2)
- Q4 A student is not able to see clearly the questions written on the black board placed at a distance of 5 m from him. (2)
- a) Name the defect of vision he is suffering from
- b) What are the causes for this defect.
- Q5 Name two gases, other than carbon-di-oxide, those are given out during burning of fossil fuel and contribute towards acid rain formation. (2)
- Q6 a) What is atmospheric refraction? What causes atmospheric refraction? (3)
- b) Why do stars twinkle on a clear night?
- Q7 a) State Ohm's Law. Express it mathematically. (3)
- b) Define 1 ohm.
- c) An electric bulb is rated 220V and 100W. When it is operated on 110 V, what will be the power consumed?
- Q8 A student constructed a model of box type solar cooker. He used a transparent plastic sheet to cover the open face of the box. He found that this cooker does not function well. What could be the possible drawbacks in his model? List any three of them. (3)
- Q9: (a) What happens when lead nitrate solution is added to potassium iodide solution?
(b) Metals generally occur in solid state. Name and write symbol of a metal that exists in liquid state at room temperature. (3)
- Q10: Write the electron dot structure for sodium and chlorine atoms. How do these form a chemical bond? Name the type of bonds so formed. (3)
- Q11: (a) Two carbon compounds A and B have the molecular formula C_3H_8 and C_3H_6 respectively. Which one of the two is most likely to show addition reaction? Justify your answer.
(b) What is chlor-alkali process? (3)
- Q12. Why are the environmentalists insisting upon 'sustainable natural resource management'? Give any three reasons. (3)
- Q13. What are the differences between the transport of materials in xylem and phloem? (3)
- Q14. How is ozone formed in the upper atmosphere? Why is the damage to ozone layer a cause of concern to us? What causes the damage? (3)
- Q15. Explain the importance of fossils in deciding evolutionary relationships. (3)
- Q16 a) What is meant by power of a lens? Name and define its SI unit . (5)
- b) One student uses a lens of focal length +50 cm and another of -50 cm. State the nature of each lens and find their powers.
- c) Which of the two lenses will always give a virtual, erect and diminished image irrespective of the position of the object?

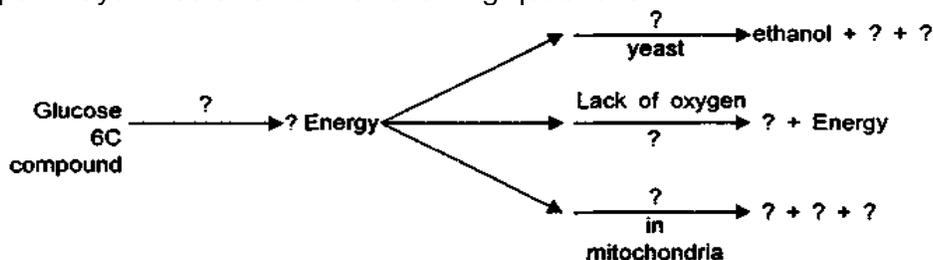
- Q17 a) What is solenoid? (5)
 b) Draw field lines of the magnetic field through and around a current carrying solenoid.
 c) What does the magnetic field pattern inside the solenoid indicate?
 d) How can you predict polarity of the two ends of a solenoid?

- Q18 : (a) Write the name and symbol of the metal which is liquid at room temperature and non-metal which is lustrous. (5)
 (b) Why does calcium metal start floating when it reacts with water? Give equation of the reaction.
 (c) Ionic compounds do not conduct electricity in solid state, but they are good conductors in molten states. Why?
 (d) Generally a hydrogen gas is evolved when a metal reacts with dilute acids but this does not happens when a metal reacts with nitric acid. Why?
 (e) Name two metals which reacts with very dilute HNO_3 to evolve hydrogen gas.

- Q19 : (a) What is isomerism? Write the structures of possible isomers of pentane. (5)
 (b) Why does ethylene burns with a sooty flame?
 (c) Give a test that can be used to differentiate chemically between butter and cooking oil. (5)

Q20. Draw the diagram of reproductive system of human female. Label fallopian tube, Uterus, cervix and vagina. What is ovulation and when does it take place during the menstrual cycle? Where does fertilization take place? (5)

Q21. Complete the schematic representation of the breakdown of glucose by different pathways: Also answer the following questions: (5)



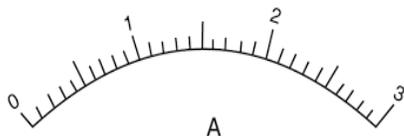
Why do muscles feel tired and develop cramps?

Which energy rich compound is produced in respiration?

Why is less energy produced in anaerobic respiration and more in aerobic respiration?

Section B

- Q22 (a) Why an ammeter is always connected in series in an electric circuit? (2)
 (b) The scale of an ammeter is shown below:



What is the least count if this ammeter?

- Q23 In an experiment to study the refraction of light through a rectangular glass slab, a student (2) measured that angle of incidence, angle of refraction and angle of emergence. The student lost the reading of angle of incidence but noted the readings of angle of refraction to be 35° and angle of emergence of be 65° . What would be the angle of incidence ? Also represent it with the help of a diagram.

- Q24: Dry HCl gas does not turn blue litmus red whereas HCl does. Give reason (2)
- Q25: How is soap manufactured? (2)
- Q26. Why should we decolourise a leaf before testing for starch? (2)
- Q27. What precautions should be taken in the experiment to show that CO₂ is produced during respiration? (2)