

## SECTION-A

## PHYSICS

- Q1 Find the number of equal resistances required to carry 5A on a 220V line. If the combined resistance offered in the circuit is  $176\Omega$ . (2)
- Q2 What are the qualities of an ideal source of energy? (3)
- Q3 What is solenoid? Draw magnetic field lines due to a current-carrying solenoid. Write three important features of the magnetic field obtained. (3)
- Q4 Find (a) the highest, (b) the lowest value of resistance that can be obtained by the combination of four resistors of  $4\Omega$ ,  $8\Omega$ ,  $12\Omega$ , and  $24\Omega$ . (3)
- Q5 What are the environmental consequences of the increasing demands for energy? What steps would you suggest to reduce energy consumption? (3)
- Q6 Draw the magnetic field lines of a magnetic field due to a circular coil of current. Name any two factors on which the magnitude of the magnetic field due to this coil depends? (3)
- Q7 What is heating effect of electric current? State Joule's law of heating obtains an expression for amount of heat produced. Name some appliances based on heating effect of current. (5)
- Q8 Explain the following:- (5)
- Why are the coils of electric toasters and electric irons made of an alloy rather than pure metal?
  - Why is the series arrangement not used for domestic circuits?
  - Why is tungsten used almost exclusively for filament of electric lamps?
  - How is a voltmeter connected in a circuit to measure the potential difference between two points?
  - On what factor does the resistance of a conductor depends.

## CHEMISTRY

- Q9 Explain the following terms with example of each : (2)
- a) Corrosion    b) Rancidity
- Q10 A magnesium ribbon is burnt in oxygen to give a white compound 'X' accompanied by emission of light. If the burning ribbon is now placed in an atmosphere of nitrogen it continues to burn and forms a compound 'Y'.
- Write the chemical formula of X and Y.
  - Write a balanced chemical equation when X is dissolved in water.

Q11a) A student detected the pH of four solutions A, B, C and D as follows: 11, 5, 7 and 2. Predict the nature of the solution.

b) Why do acids not show acidic behavior in absence of water? (3)

Q12 Give an example of a metal which is:

a) A liquid at room temperature. - Mercury

b) Can be cut with knife. - Sodium

c) A poor conductor of heat. - Pb (Lead) (3)

Q13 1) Using the electronic configuration, explain how magnesium atom combines with oxygen to form magnesium oxide.

2) What do you mean by amphoteric oxide? Give an example.

3) Define the following terms: calcination and electrolytic refining. (5)

Q14 (1) Differentiate between metal and non metal on the basis of their chemical properties.

(2) What is the chemical name and formula of baking soda? How you prepared it? Give its two uses. (5)

## BIOLOGY

Q15 Define reproduction (1)

Q16 What do you understand by the term emulsification? (1)

Q17 Write any two methods used by plants to get rid of excretory products. (2)

Q18 What happens at synapse between two neurons. (3)

Or

Write differences between Aerobic and Anaerobic respiration.

Q19 Explain double Circulation in human being. (3)

Q20 How does photo tropism occur in plants (5)

Q21 Explain double fertilization in flowering plant with diagram. (5)

### SECTION-B

- Q22 How do you connect an ammeter and voltmeter in an electric circuit? (2)
- Q23 Draw diagram to show the magnetic field lines around a bar magnet. List any two properties of magnetic field lines. (2)
- Q24 What is the colour change when zinc pieces are added to ferrous sulphate solution. Give chemical equation for the above reaction. (2)
- Q25 Name the gas evolved when sodium hydrogen carbonate is made to react with dilute hydrochloric acid? How will you test the gas? (2)
- Q26 What is regeneration? Draw the diagram showing regeneration. (2)
- Q27 Write the name of pigment required for photo synthesis. Write its function also. (2)