C–5–B

Roll No.

Total No. of Questions : **18]** [Total No. of Printed Pages : **8**

SSERKDO18

20205–B

SCIENCE

(Physics, Chemistry & Life Science)

Time : 3 Hours] **[Maximum Marks : 84**

Section–A

(PHYSICS)

(Long Answer Type Questions)

1. Draw the ray diagrams and find the position, size and nature of image formed in case of a convex lens when object is placed (a) in between focus and twice the focus (b) in between optical centre and focus. Mark the positions of object and image in the diagram. 2+3+1=6

Or

An object 4 cm in size is placed at 25 cm in front of a concave mirror of focal length 15 cm. At what distance from the mirror should a screen placed in order to obtain a sharp image ? Find the nature and size of image formed. 4+2=6

(Short Answer Type Questions)

2. Define power of accommodation. What is the far point and near point of the human eye with normal vision ? 2+2=4

Or

What is Hypermeteropia ? Draw the diagram and show how it is corrected. 2+2=4

3. Define potential difference. Give its units and define it. 2+2=4

Or

Draw the symbols of some commonly used components in circuit diagram (only *eight*). 8×½=4

4. What is Solenoid ? How does a solenoid behave like a magnet ? 1+3=4

Or

How will you prove that current carrying conductor produces the magnetic field ? Draw the diagram. 3+1=4

(Very Short Answer Type Questions) 2 each

5. (i) The magnification produced by a plane mirror is +1, what does it mean ?

(ii) Define refraction of light.

(iii) What are renewable sources of energy ? Give example.

(Multiple Choice Questions) 1 each

6. (i) Amount of light entering the eye depends upon the size of :

(a) pupil

(b) iris

(c) cornea

(d) eyelids

(ii) When a current is passed through a resistor, the heat produced in it is ?

(a) directly proportional to square of current

(b) directly proportional to resistance for a given resistor

(c) directly proportional to the time for which current flows

(d) all the above

(iii) Filament of a bulb is made of :

(a) Aluminium

(b) Silver

(c) Tin

(d) Tungsten

(iv) The semiconductor meterial used for making solar cells is :

(a) Silver

(b) Germanium

(c) Silicon

(d) Silicon and Germanium

Section–B

(CHEMISTRY)

(Long Answer Type Questions)

7. Describe the important chemical properties of carbon compounds. Write the equations for each reaction. 4+2=6

Or

What are soaps and detergents ? Explain the mechanism of cleaning action of soaps and detergents. 2+4=6

(Short Answer Type Questions)

8. Explain displacement and double displacement reactions. Give examples of each. 2+2=4

Or

Write the balanced chemical equations for the following reactions :

(i) Solutions of barium chloride and sodium sulphate in water reacts to give insoluble barium sulphate and solution of sodium chloride.

(ii) Sodium hydroxide solution reacts with hydrochloric acid solution to produce sodium chloride and water. 2+2=4

Write the reaction of metals with acids and other salts. 2+2=4

Or

How copper is refined by the process of electrolytic refining ? Draw the diagram of electrolytic bath. 3+1=4

10. How washing soda is obtained ? Write the *three* uses of washing soda. 1+3=4

Or

How can pH change cause tooth decay and how is it prevented ? 2+2=4

(Very Short Answer Type Questions) 2 each

11. (i) What are the *two* properties of carbon which lead to the formation of large number compounds ?

(ii) Write the *two* main achievements of Mendeleev's periodic table.

(iii) Why do ionic compounds have high melting point ?

(Multiple Choice Questions) 1 each

12. (i) Which of the following products are formed when dilute hydrochloric acid is added to iron feelings ?

(a) Hydrogen gas and iron chloride is formed

(b) Chlorine gas and iron hydroxide is formed

(c) No reaction takes place

(d) Iron salt and water is produced

(ii) The number of elements classified by Mendeleev is :

(a) 63

(b) 104

(c) 53

(d) 110

(iii) The chemical formula of bleaching powder is :

(a) $CaCl_2$

(b) Ca_2Cl_2

(c) $CaCl_3$

(d) $CaOCl_2$

(iv) Which of the following elements have smallest atomic radius ?

(a) Berellium

(b) Boron

(c) Oxygen

(d) Sodium

Section–C

(LIFE SCIENCE)

(Long Answer Type Questions)

13. Describe briefly the process of digestion in man. 6

Or

What is Excretion ? Describe the various parts of excretory system of human beings along with well labelled diagram. 1+5=6

(Short Answer Type Questions)

14. What is reflex action ? Write the role of brain in reflex action. 3+1=4

Or

Draw the structure of neuron and explain its function. 2+2=4

15. Name the different modes of asexual reproduction in plants and explain one of them. 3+1=4

Or

Describe the human female reproductive system. 4

16. What is Biological Magnification ? Will the levels of this magnification be different at different levels of the ecosystem ? 4

Or

Why is damage to the ozone layer a cause for concern ? What steps are being taken to limit this damage ? 2+2=4

(Very Short Answer Type Questions) 2 each

17. (i) Write the *two* methods of conserving water resources.

(ii) Why do we need to manage our resources ?

(iii) How does the creation of variations in species promote survival ?

(Multiple Choice Questions) 1 each

18. (i) In a monohybrid cross, we get a phenotypic ratio in F_2 generation is :

(a) 1 : 2 : 1

(b) 2 : 1 : 2

(c) 3 : 1

(d) 2 : 1 : 1

(ii) Which of the following parts of a seed forms a new plant ?

(a) Endosperm

(b) Seed Coat

(c) Embryo

(d) Radical

(iii) An example of homologous organs is :

(a) our arm and dogs fore leg

(b) our teeth and elephants tusks

(c) potato and runner of grass

(d) All of the above

(iv) Which of the following parts of flowers Shrival and fall off after fertilization ?

(a) Sepals

(b) Petals

(c) Stemens and Carpel

(d) All of the above