

A-5-Z

Roll No.

Total No. of Questions : 18]

[Total No. of Printed Pages : 8

XKDARO/N19

24605-Z

SCIENCE

(Physics, Chemistry & Life Science)

Time : 3 Hours]

[Maximum Marks : 84

Section-A

(PHYSICS)

(Long Answer Type Questions)

1. Describe with the help of diagrams the nature, size and position of the images formed in case of concave mirror when the object is placed :
- (a) between pole and focus
 - (b) Beyond the centre of curvature.

Or

A concave lens of focal length 15 cm form an image 10 cm from the lens. How far is the object placed from the lens ? Draw the ray diagram.

6

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Turn Over .

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(Short Answer Type Questions)

4 each

2. Define the term power of accommodation of an human eye. What is the near point and far point of a normal human eye ?

Or

Differentiate between myopia and hypermetropia.

3. State Ohm's law. Explain giving the circuit diagram how you will verify it in the laboratory.

Or

With the help of a diagram derive the formula for equivalent resistances for three resistances connected in parallel.

4. What is the principle of an electric motor ? What is the role of the split ring in an electric motor ?

Or

Draw magnetic field lines around a bar magnet. List the properties of magnetic lines of force.

(Very Short Answer Type Questions)

2 each

5. (i) Find the power of a concave lens of focal length 2 m.
(ii) Define principal focus of a concave mirror.
(iii) What are the advantages of nuclear energy ?

(Multiple Choice Questions)

1 each

6. (i) The change in focal length of an eye lens is caused by the action of :
- (A) Pupil
 - (B) Retina
 - (C) Ciliary muscles
 - (D) Iris
- (ii) The S.I. unit of electric charge is :
- (A) Coulomb
 - (B) Ohm
 - (C) Ampere
 - (D) Volt
- (iii) Which of the following terms does not represent electric power in a circuit ?
- (A) I^2R
 - (B) IR^2
 - (C) VI
 - (D) V^2/R
- (iv) Which of the following is not an example of a bio-mass energy source ?
- (A) Wood
 - (B) Gobar-gas
 - (C) Nuclear energy
 - (D) Coal

Section-B

(CHEMISTRY)

(Long Answer Type Questions)

6

7. Draw the electron dot structures for :

(i) Ethanoic acid

(ii) H_2S

(iii) Propanone

(iv) F_2

How can ethanol and ethanoic acid be differentiated on the basis of their physical and chemical properties ?

(Short Answer Type Questions)

4 each

8. What is the difference between displacement and double displacement reactions ? Write equations for these reactions.

Or

Explain the following terms with examples :

(i) Corrosion

(ii) Rancidity.

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9. Name :

- (i) Three elements that have a single electron in their outermost shells.
- (ii) Two elements that have two electrons in their valence shells.
- (iii) Three elements with filled outermost shells.

Or

How could the modern periodic table remove various anomalies of Mendeleev's periodic table ?

10. What is meant by refining of metals ? Describe the electrolytic refining of copper with a neat labelled diagram.

Or

Compare the important characteristics of metals and non-metals.

(Very Short Answer Type Questions)

2 each

- 11. (i) What is difference between a strong acid and a weak acid.
- (ii) What is the chemical formula of bleaching powder and what is its chemical name ?
- (iii) How do metals and non-metals combine ?

(Multiple Choice Questions)

1 each

12. (i) When iron reacts with copper sulphate solution to form iron sulphate and copper :
- (A) Iron is reduced
 - ~~(B) Iron is oxidized~~
 - ~~(C) Copper is reduced~~
 - (D) Copper is oxidized

(ii) Pentane has the molecular formula C_5H_{12} . It has :

- (A) 5 covalent bonds
- (B) 12 covalent bonds
- (C) 16 covalent bonds
- (D) 17 covalent bonds

(iii) Butanone is a four carbon compound with the functional group :

- (A) Carboxylic acid
- (B) Aldehyde
- (C) Ketone
- (D) Alcohol

(iv) Which one of the following types of medicine is used for treating in digestion ?

- (A) Antibiotic
- (B) Analgesic
- (C) Antacid
- (D) Antiseptics

Section-C

(LIFE SCIENCE)

(Long Answer Type Questions)

13. What is Digestion ? Describe briefly the process of digestion in man.

Or

Describe the structure and functions of nephrons.

(Short Answer Type Questions)

4 each

14. What is difference between reflex action and walking ?

Or

Draw the structure of neuron and explain its function.

15. How does binary fission differ from multiple fission ?

Or

What is the role of the seminal vesicles and the prostate glands.

16. Explain the terms analogous and homologous organs with examples.

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How is the sex of the child determined in human beings ?

(Very Short Answer Type Questions)

2 each

17. (i) What is the role of decomposers in the ecosystem ?

(ii) Which gas shields the surface of earth from harmful radiations of the sun ? Why are UV radiations harmful to organisms ?

(iii) What is meant by renewable natural resources ?

(Multiple Choice Questions)

1 each

18. (i) The pH range most conducive for life of fresh water plants and animals is :

(A) 6.5 – 7.5

(B) 2.0 – 3.5

(C) 3.5 – 5.0

(D) 9.0 – 10.5

(ii) The three R's that will help us to conserve natural resources for long term use are :

- (A) Recycle, regenerate, reuse
- (B) Reduce, regenerate, reuse
- (C) Reduce, reuse, redistribute
- (D) Reduce, recycle, reuse

(iii) Blue print of body design and function is :

- (A) Protoplasm
- (B) RNA
- (C) DNA
- (D) Cytoplasm

(iv) Binary fission in Amoeba is a mode of :

- (A) Vegetative multiplication
- (B) Asexual reproduction
- (C) Sexual reproductions
- (D) Perennation