

FOUNDATION COURSE

CLASS X

Max. Marks. : 100

Time : 2 hrs.

PAPER : 17

P_G C_{DD} M_A B_G

TOPICS COVERED:

- PHYSICS** : Human Eye, Light and Colourful World
CHEMISTRY : Periodic Classification of Elements
MATHS : Quadratic Equation, Circles, Arithmetic Progression
BIOLOGY : Our Environment

GENERAL INSTRUCTIONS :

1. Paper consist of **4 Section** each for **Physics, Chemistry, Maths** and **Biology**. Answers for each question should be given in the space provided in the question paper itself.
2. Each section contains 13 questions, all questions are compulsory.
3. Question 1 - 5 are **objective type questions** of 1 Mark each.
4. Question 6 - 7 consist of 1 Marks each.
5. Question 8 - 9 consist of 2 Marks each.
6. Question 10 - 12 consist of 3 Marks.
7. Question 13 consist of 5 Marks.

	Physics	Chemistry	Maths	Biology
Marks				
Total				

Name of the Student : _____

Centre : _____

Invigilator's Signature : _____

PHYSICS

1. The unit of potential is
(a) Joule (b) Newton (c) Volt (d) Ampere [1]
2. Electric current is
(a) Scalar (b) Vector (c) both (d) none [1]
3. The least distance of distinct vision is
(a) 10 cm (b) 15 cm (c) 20 cm (d) 25 cm [1]
4. Myopia is corrected by
(a) Concave lens (b) Concave mirror (c) Convex lens (d) Convex mirror [1]
5. Which of the following has least wavelength ?
(a) Blue (b) Green (c) Orange (d) Red [1]
6. Define electric current. [1]

7. What is hypermetropia ? [1]

8. A current of 0.5 A is drawn by a filament of an electric bulb for 10 minutes. Find the amount of electric charge that flows through the circuit. [2]

9. Define potential. Name the instrument used to measure potential difference. [2]

10. How much energy is given to 2C of charge when it crosses two points having a potential difference of 12 V. [3]
11. What is dispersion of light. Draw a neat diagram of a prism and show the splitting of a white light when it passes through the prism. [3]
12. A person is suffering from hypermetropia. Find the focal length of the corrective lens if near point is 70 cm. Assume least distance of distinct vision is 20 cm. [3]

13. Explain the concept of drift speed and write its relation with current.

OR

What is scattering of light ? Hence explain briefly about tyndall effect.

[5]

CHEMISTRY

1. Which of the following represents a Dobereiner's triad ? [1]
(a) Na, Cl, Ca (b) Cl, Br, I (c) Li, Br, Sr (d) K, I, Ba
2. Which of the following combination of elements belong to the same group ? [1]
(a) Cu, Ag, Au (b) Li, Be, Al (c) Na, Mg, Al (d) O, S, Cl
3. In Mendeleev's periodic table, the properties of the elements are a periodic function of their [1]
(a) Atomic size (b) Ionization energy (c) Atomic mass (d) Atomic number
4. Number of groups and periods respectively present in Modern Periodic Table are [1]
(a) 16, 7 (b) 6, 16 (c) 18, 7 (d) 18, 6
5. Which of the following represents most electropositive element ? [1]
(a) Li (b) Be (c) K (d) Ca
6. Why are the elements lithium, sodium and potassium called alkali metals ? [1]

7. Name one alkali metal and one alkaline earth metal each starting with the letter 'S' [1]

8. The number of electrons, protons and neutrons in the three elements X, Y, and Z are given below : [2]

Element	Electrons	Protons	Neutrons
X	8	8	8
Y	10	10	10
Z	12	12	12

Choose the element which represents an atom of an inert gas

9. Where do you think hydrogen should be placed in the Modern Periodic Table ? [2]

10. Classify the following elements into metals and non-metals. S, Mg, Al, P, N, Na, K. [3]
11. A metal M forms an oxide having the formula M_2O_3 . It belongs to 3rd period of the modern periodic table. Write the atomic number and the valency of the metal. [3]
12. The elements, chlorine, bromine and iodine have been put in the same group on the basis of their similar chemical properties [3]
- What are those similar properties ?
 - What is the common name of this group or family ?

13. What do you understand by the term periodicity ? Are the properties of the elements placed in the same group similar ? Illustrate. [5]

MATHS

1. A circle touches all the four sides of a quadrilateral ABCD whose side $AB = 6$ cm, $BC = 7$ cm and $CD = 4$ cm, then $AD =$ [1]
(a) 1 cm (b) 2 cm (c) 3 cm (d) None of these
2. For what value of K the quadratic equation $4x^2 - 3kx + 1 = 0$ has equal roots [1]
(a) $\pm\frac{1}{3}$ (b) $\pm\frac{4}{3}$ (c) 0 (d) None of these
3. The quadratic equation $ax^2 + bx + c = 0$ has no real roots if [1]
(a) $D > 0$ (b) $D = 0$ (c) $D < 0$ (d) None of these
4. If the sum of first n terms of an AP is given by $S_n = 2n^2 + 5n$, then $a_2 =$ [1]
(a) 7 (b) 18 (c) 15 (d) 11
5. The 10th term of the AP $\sqrt{2}, 3\sqrt{2}, 5\sqrt{2}, \dots$ is [1]
(a) $10\sqrt{2}$ (b) $19\sqrt{2}$ (c) $20\sqrt{2}$ (d) None of these
6. PQ and PR are tangent segments to a circle with centre O. If $\angle QPR = 80^\circ$. Find $\angle QOR$ [1]
7. Find the 20th term of the AP $-40, -15, 10, 35, \dots$ [1]
8. Find the value of C such that the equation $4x^2 - 2(C + 1)x + (C + 4) = 0$ has real and equal roots. [2]

9. If $\triangle ABC$ is isosceles with $AB = AC$. Prove that the tangent at A to the circumcircle of $\triangle ABC$ is parallel to BC [2]

10. Two circles of radii 10 cm and 8 cm are concentric. Calculate the length of a chord of the larger circle which touches the smaller circle [3]

11. Solve $2x^2 - 5x + 3$ by completion of square method. [3]

12. A dealer sells an article for Rs 56 and gains as much percent as the cost price of the article. What is the cost price of the article. [3]

13. How many terms of the AP $-6, \frac{-11}{2}, -5, \dots$ are needed to give the sum -25 ? Explain the double answer. [5]

BIOLOGY

1. The ultimate source of energy is
(a) Glucose (b) Green plants (c) Sun (d) ATP [1]
2. In natural ecosystem, decomposers include
(a) Parasitic algae (b) Bacteria & Fungi (c) None of these (d) All of the above [1]
3. The atmospheric pollutant responsible for depletion of ozone layer is
(a) NO₂ (b) CO₂ (c) CFC (d) Water vapour [1]
4. Which of the following is not an abiotic component of an ecosystem
(a) Plant (b) Sunlight (c) Air (d) Soil [1]
5. The disease 'Minimata' is caused by _____ poisoning
(a) Lead (b) Zinc (c) Copper (d) Mercury [1]
6. Explain 10% law. [1]
7. Draw a food chain of grassland ecosystem. [1]
8. What will happen if we kill all the organism of one trophic level ? [2]

9. If 2000 J of energy is produced by plant then how much energy will be available to peacocks in following food chain

Plants → Mice → Snake → Peacocks

[2]

10. List two reasons to show that the existence of decomposers is essential in biosphere.

[3]

11. How would you justify that “vegetarian food habits gives us more calories” ?

[3]

12. Where is ozone layer found in atmosphere ? What is its importance ? Write the harmful effect of U V rays? [3]

- 13.** Explain with an example, the accumulation of harmful chemicals through food chains. From where to these chemicals initially come ? **[5]**