

FOUNDATION COURSE

CLASS IX

PAPER : 05

Time : 2 hrs.

Max. Marks. : 100

P_R C_S M_{AK} B_G

TOPICS COVERED:

PHYSICS : Force & Law of Motion.

CHEMISTRY : Atoms and Molecules

MATHS : Polynomials

BIOLOGY : Meristemic Tissues, Simple and Complex permanent tissues

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 question** 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 force is
(a) Newton (b) Kg (c) m/sec^2 (d) none of these [1]
2. Name of the physical quantity, whose unit is Kg m/sec
(a) force (b) velocity (c) momentum (d) mass [1]
3. A force acts on an object which is free to move. If we know the magnitude of the force and the mass of the object, Newton's second law of motion enables us to determine the object's
(a) weight (b) acceleration (c) speed (d) position [1]
4. Momentum is a _____ quantity
(a) scalar (b) vector (c) both (d) none of these [1]
5. The action and reaction forces referred to in Newton's third law
(a) must act on the same object (b) may act on the different objects
(c) must act on the different objects (d) none of these [1]
6. What special name has been given to the force which acts on a body for a very short time ? [1]
7. State Newton's third law of motion. [1]
8. Explain Newton's second law of motion. What is formula for force ? [2]
9. What force would be needed to produced an acceleration of 4 m/sec^2 in a ball of mass 60 gm ? [2]

- 10.** A man throws a ball weighing 500 gm vertically upwards with a speed of 10 m/s.
- (i) What will be its initial momentum ?
 - (ii) What would be its momentum at the highest point of its flight ?
- [3]**

- 11.** Derive Newton's Second Law of Motion.
- [3]**

- 12.** A 2000 Kg car travelling at 72 Km/hr ran into a concrete wall and stopped in 0.05 sec. What force did the wall exert on the car ?
- [3]**

13. A force of 5 N gives a mass m_1 an acceleration of 8 m/sec^2 , and a mass m_2 an acceleration of 24 m/sec^2 . What acceleration would it give if both the masses are tied together ? [5]

CHEMISTRY

1. Avogadro's constant would be
(a) 6.023×10^{23} (b) 6.023×10^{24}
(c) Mass of 1 mole of atom (d) None of these [1]
2. Which of the following has same moles as 32 g of sulphur ?
(a) 3 g of oxygen (b) 2 g of H_2 (c) 16 g of CH_4 (d) All of these [1]
3. Number of valence is present in valence shell of K is [atomic number –19]
(a) 1 (b) 2 (c) 3 (d) 4 [1]
4. An alpha particle is
(a) an ionised hydrogen (b) an ionised helium atom
(c) a doubly ionised helium atom (d) a neutral [1]
5. Number of valence electrons in Cl^{-1} ion are
(a) 16 (b) 8 (c) 17 (d) 18 [1]
6. The atomic number of an element is 13. Find out the number of valence electrons in its atom. [1]
7. Define atom ? [1]
8. What is atomic mass ? [2]
9. Write the chemical formula of following ? (a) Sodium chloride, (b) Copper Sulphate. [2]

10. If chlorine occur in the form of say two isotopes ${}_{17}^{35}\text{Cl}$ (75%) and ${}_{17}^{37}\text{Cl}$ (25%), then calculate the atomic mass of chlorine atom. [3]

11. Define mole ? [3]

12. Write the electronic configuration of the following :
(a) Na^{11} (b) Ca^{20} (c) S^{16} [3]

13. Calculate the numbers of moles in the following [atomic mass C = 12, H = 1, He = 2, N = 14].

[5]

(a) 52 g of He

(b) 34 g of NH₃

(c) 44 g of CH₄

1. The value of $1.5^3 - 0.9^3 - 0.6^3$ is
(a) 2.4 (b) 2.430 (c) 2.30 (d) none of these [1]
2. The value of $(1002)^3$ is
(a) 1006012008 (b) 106012008 (c) 100601208 (d) 100612008 [1]
3. What is the remainder when $P(x) = x^3 + 1$ is divided by $x + 1$.
(a) 0 (b) 1 (c) 2 (d) -1 [1]
4. What is the value of $10^3 + 20^3 - 30^3$? [1]
(a) zero (b) 1800 (c) -1800 (d) -180
5. What is the value of k, if $x + 3$ is a factor of $3x^2 + kx + 6$? [1]
(a) 1 (b) 2 (c) 11 (d) 9
6. What is the degree of the polynomial $x^{21} - x + 1 = 0$? [1]
7. Find remainder when $x^3 + 3x^2 + 3x + 1$ is divided by $x + 1$? [1]
8. Factorize $x^2 + 3\sqrt{3}x + 6$ [2]

9. Factorize : $x^3 - 12x(x - 4) - 64$. [2]

10. Find the values of a and b so that the polynomial $x^3 + 10x^2 + ax + b$ is exactly divisible by $(x - 1)$ and $(x - 2)$. [3]

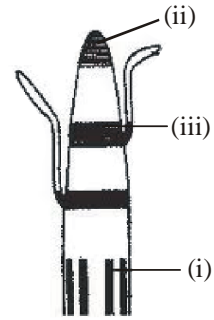
11. Simplify $\frac{(a^2 - b^2)^3 + (b^2 - c^2)^3 + (c^2 - a^2)^3}{(a - b)^3 + (b - c)^3 + (c - a)^3}$ [3]

12. Verify that $x^3 + y^3 + z^3 - 3xyz = \frac{1}{2} (x + y + z) [(x-y)^2 + (y-z)^2 + (z-x)^2]$ [3]

13. If both $(x - 2)$ and $\left(x - \frac{1}{2}\right)$ are factors of $px^2 + 5x + r$, show that $p = r$.

[5]

BIOLOGY



1. Find out the correct matching in the following meristmatic tissues? [1]
- (a) (i) Lateral meristem, (ii) Intercalary meristem, (iii) Apical meristem
(b) (i) Lateral meristem, (ii) Apical meristem, (iii) Intercalary meristem
(c) (i) Intercalary meristem, (ii) Apical meristem, (iii) Lateral meristem
(d) (i) Apical meristem, (ii) Lateral meristem, (iii) Intercalary meristem
2. The elongated, thick-walled and tapering cells are [1]
- (1) Parenchymatous (2) Sclerenchymatous (3) Collenchymatous (4) Aerenchymatous
3. The tissue whose cells are thin-walled and more or less isodiametric and have intercellular spaces is known as [1]
- (1) Collenchyma (2) Parenchyma (3) Sclerenchyma (4) Cortex
4. The lateral meristem is responsible for [1]
- (1) Growth in length (2) Growth in parenchyma
(3) Growth in thickness (4) Growth in cortex
5. A living mechanical tissue is [1]
- (1) Parenchyma (2) Chlorenchyma (3) Sclerenchyma (4) Collenchyma
6. When meristematic tissue converted into permanent tissues ? [1]
7. Why we called complex permanent tissue a complex one ? [1]
8. What do you understand by intercalary meristem, Where it is present in plant ? [2]
9. Explain the function of lateral meristem and where it is located. [2]

10. What do you understand by parrenchyma. Explain with its structure function and location. [3]
11. What are the different between meristmatic tissue and permanent tissues ? [3]
12. Explain collechyma cells in the plant tissue, what are there function in plant. [3]

13. (i) What are complex permanent tissue ? [1]
- (ii) Which complex permanent tissue responsible for translocation of food, water and minerals ? And what are constituents of these complex permanent tissues. [4]