

FOUNDATION COURSE
CLASS X
PAPER : 5

Max. Marks. : 100

Time : 2 hrs.

P_{RP} C_S M_K B_D

TOPICS COVERED:

- PHYSICS** : Magnetic Effect of Current.
CHEMISTRY : Acid, Base and Salt
MATHS : Quadratic Equation
BIOLOGY : Parts of Brain, CNS, Reflex action

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 : _____

9. State right hand thumb rule. [2]
10. List three properties of magnetic lines of forces. [3]
11. Consider a straight current carrying conductor. Draw magnetic field lines around it when
(i) current goes from bottom to top
(ii) current goes from top to bottom [3]
12. Explain electromagnetic induction. [3]
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13. What is an electric motor ? Explain its working principle with a neat labelled diagram.

[5]



CHEMISTRY

1. pH of acid rain is
(a) 6.2 (b) 5.6 (c) 7.2 (d) 1.2 [1]
 2. The gas evolved when sodium hydroxide react with Zn
(a) CO₂ (b) O₂ (c) H₂ (d) CO [1]
 3. Electricity in solution is conducted by
(a) ions (b) electrons (c) molecules (d) atoms [1]
 4. $\text{Na} + \text{H}_2\text{O} \rightarrow \text{NaOH} + \text{H}_2$, P in the above reaction would be
(a) O₂ (b) H₂ (c) Both (d) None of these [1]
 5. Which is the correct order of chemical reactivity of metals ?
(a) Zn < Fe < Cu < Na (b) Fe < Zn < Na < K
(c) Na < K < Zn < Cu (d) Zn < Fe < Na < K [1]
 6. Write two differences of acidic and basic salts. [1]

 7. Define water of crystallisation ? Write the no. of water molecules present in one formula unit of CuSO₄ crystal. [1]

 8. Is H₂ gas evolved when most metal react with nitric acid ? Explain. [2]
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9. Give reason : Ionic compound conduct electricity only in molten state not in solid state. [2]
10. Alcohol and glucose contain hydrogen but are not acidic. Explain. [3]
11. A sanitary worker uses a white chemical having strong smell of Cl_2 gas to disinfect the water tank. Identify the compound. Write its chemical formula. Give the chemical equation for its preparation. [3]
12. Write the chemical equations for the following reactions :
- (i) Iron reacts with steam
 - (ii) Mg reacts with hot water
 - (iii) Zn react with sodium hydroxide. [3]
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13. What happens when

- (i) Excess of CO_2 is passed through lime water.
- (ii) Dry chlorine gas is passed over slaked lime.
- (iii) Electricity is passed through an aqueous solution of sodium chloride.
- (iv) Gypsum is heated at 373 K.
- (v) A solution of sodium hydrogen carbonate is heated.

[5]

1. If value of 'k' if $kx^2 + 2x - 3 = 0$ has $x = 2$ as a solution is
 (a) $\frac{1}{4}$ (b) $-\frac{1}{4}$ (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$ [1]
2. If $x = 2$ and $x = 3$ are the roots of the equation $3x^2 - 2kx + 2m = 0$, then the value of 'k' is
 (a) $\frac{15}{2}$ (b) $\frac{13}{2}$ (c) $\frac{11}{2}$ (d) $\frac{17}{2}$ [1]
3. If $x = 2$ and $x = 3$ are the roots of the equation $3x^2 - 2kx + 2m = 0$, then the value of 'm' is
 (a) 8 (b) 7 (c) 6 (d) 9 [1]
4. If one root of the quadratic equation $2x^2 + kx - 6 = 0$ is 2, then the other root is
 (a) $\frac{3}{2}$ (b) $\frac{5}{2}$ (c) $-\frac{5}{2}$ (d) $-\frac{3}{2}$ [1]
5. One of the roots of $\sqrt{3}x^2 + 10x + 7\sqrt{3} = 0$ is
 (a) $\sqrt{3}$ (b) $-\frac{7}{\sqrt{3}}$ (c) $\frac{7}{\sqrt{3}}$ (d) $\frac{4}{\sqrt{3}}$ [1]
6. Solve $x^2 + 2\sqrt{2}x - 6 = 0$. [1]
7. Solve $\sqrt{3}x^2 + 10x + 7\sqrt{3} = 0$. [1]
8. Solve $8x^2 - 22x - 21 = 0$. [2]
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9. Solve $\frac{x}{x+1} + \frac{x-1}{x} = \frac{34}{15}$ ($x \neq 0, x \neq -1$) [2]

10. Solve $\frac{2x}{x-3} + \frac{1}{2x+3} + \frac{3x+9}{(x-3)(2x+3)} = 0$ ($x \neq 3, x \neq \frac{-3}{2}$) [3]

11. Solve $4x^2 - 4a^2x + (a^4 - b^4) = 0$. [3]

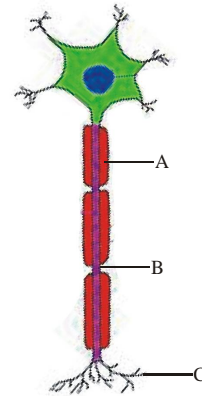
12. Solve $x + \frac{1}{x} = 25\frac{1}{25}$. [3]

13. Solve $9x^2 - 9(a+b)x + (2a^2 + 5ab + 2b^2) = 0$.

[5]

BIOLOGY

1. Which is not true for CSF.
(1) Protection to brain and spinal cord (2) Buoyancy
(3) Acts as a shock absorber (4) Respiration [1]
2. Sense of smell is perceived by
(1) Pituitary gland (2) Hypothalamus (3) Olfactory lobe (4) Cerebrum [1]
3. Part A, B, C in the figure denotes
(1) Dendrites, Axon, Synaptic knob
(2) Myelin sheath, Nodes of Ranvier, synaptic knob
(3) Cell body, nodes of Ranvier, synaptic knob
(4) Axon, Cell body, dendrites [1]
4. Two parts of CNS are
(1) Spinal and Cranial nerves (2) Spinal cord and brain
(3) Brain and skull (4) Brain and vertebral column [1]
5. Afferent neurons
(1) Do not possess axon (2) Do not possess dendrite
(3) Carry impulses from sense organ to CNS (4) Carry impulses from CNS to sense organs [1]
6. Differentiate between efferent nerve and mixed nerve [1]
7. Differentiate between cranial nerves and spinal nerves (any two) [1]
8. Write the functions of [2]
(a) Cerebellum (b) Pons (c) Hypothalamus (d) Cerebrum



9. Explain the conduction of nerve impulse across the synapse with the help of a diagram. [2]
10. Explain the mechanism of reflex action. With a well labelled diagram of reflex arc. [3]
11. Write any 3 functions of medulla oblongata [3]
12. Draw a well labelled diagram of neuron and label dendrites, axon, cell body, myelin sheath, nodes of ranvier and axon terminal [3]
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- 13.** (a) Draw a well labelled diagram of Brain and label parts of fore brain and parts of hind brain. [3]
- (b) What is the primary function of glial cell (any two) [1]
- (c) Expand CSF [1]
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