

**F-4-X**

Roll No.

Total No. of Questions : 24

Total No. of Printed Pages : 8

**SSERJSZM17**

**12504-X**

**SCIENCE**

*(Physics, Chemistry & Life Science)*

**Time : 3 Hours**

**[Maximum Marks : 84**

**Section-A  
(PHYSICS)  
(Long Answer Type Questions)**

1. What are Spherical Mirrors? Explain, how a concave mirror is different from a convex mirror?

**Or**

Explain the laws of refraction of Light.

**(Short Answer Type Questions)**

2. What do you understand by Resistances in series?

**Or**

What is meant by Potential Difference? How is it measured?

3. Discuss the working of Human Eye as a system of refraction of light.

**Or**

Explain the phenomenon of Dispersion of Light by a Glass Prism.

4. What is Oersted Experiment? What is effect of a Bar magnet on a compass needle?

**Or**

What is an Electric Motor? Give its principle.

**(Very Short Answer Type Questions)**

5. Define Nuclear Energy.
6. A convex lens is of focal length 2 meter. What is the power of lens?
7. What is the use of Rear view mirror in vehicles?

**(Multiple Choice Questions)**

8. The stars appear to us slightly above than their actual position because of:

- i) Dispersion of light
- ii) Refraction of light
- iii) Absence of Atmosphere
- iv) Defraction of light

9. Wave energy is a type of :

- i) Geothermal energy
- ii) Nuclear energy
- iii) Conventional source of energy
- iv) Non-conventional energy source

10. The Ohm's law can be expressed as:

- i)  $V/I=R$
- ii)  $V=R/I$
- iii)  $I=V/R$
- iv)  $VR=I$

11. The arrangement of a cell, plug key, bulb and as ammeter is called:

- i) Electric Current
- ii) Electric Generator
- iii) Electric Circuit
- iv) Voltmeter

**Section-B**  
**(CHEMISTRY)**  
**(Long Answer Type Questions)**

12. What are unsaturated hydrocarbons? Discuss briefly the types of unsaturated hydrocarbons.

**Or**

What is a homologous series? Describe briefly the various homologous groups of organic compounds.

**13. (Short Answer Type Questions)**

14. Describe briefly any two types of chemical reactions with an example of each.

**Or**

What is Rancidity? How can it be prevented?

15. What are Acids? Give an idea of organic and mineral acids.

**Or**

What is the importance of pH in everyday life?

16. Explain the properties of ionic compounds.

**Or**

What are the various methods of refining of metals?

**(Very Short Answer Type Questions)**

17. Distinguish between a 'Group' and a 'Period' of modern periodic table.

18. Define Rusting.

19. What are Dobereiner's Triads?

**(Multiple Choice Questions)**

20. The combustion of unsaturated hydrocarbons give a:

- i) Clean flame
- ii) Yellow flame
- iii) White flame
- iv) Pink flame

21. The ionic end of a soap molecule is:

- i) Hydrophilic
- ii) Hydrophobic
- iii) Oil dissolving
- iv) All of these

22. Which of the following is a balanced chemical equation?

- i)  $\text{Mg} + \text{O}_2 = \text{MgO}$
- ii)  $\text{Mg} + \text{O}_2 = 2\text{MgO}$
- iii)  $\text{Mg} + 2\text{O}_2 = 2\text{MgO}$
- iv)  $2\text{Mg} + \text{O}_2 = 2\text{MgO}$

23. Common salt (NaCl) is:

- i) Acidic
- ii) Basic
- iii) Slightly Alkaline
- iv) Neutral

**Section-C**  
**(LIFE SCIENCE)**  
**(Long Answer Type Questions)**

24. What is Respiration? Describe the Respiratory system of Human beings?

**Or**

Describe how water and food materials are transported in plants.

**(Short Answer Type Questions)**

25. Explain the various movements in plants due to growth.

**Or**

Discuss the structure of Human Brain.

26. Describe briefly the human male reproduction system.

**Or**

What is vegetative propagation? What are its advantages?

27. Differentiate Acquired traits from the inherited traits.

**Or**

What are Analogous and Homologous organs? Give examples.

**(Very Short Answer Type Questions)**

- 28. Give any two ways to manage garbage at home.
- 29. Define food Chain.
- 30. What is 'Narmada Bachao Andolan'?

**(Multiple Choice Questions)**

31. Fodder is obtained from:

- i) Bacteria and Nematodes
- ii) Leaves of plants
- iii) Water harvesting tanks

iv) None of these

32. When there is insufficient oxygen (Air) the combustion produces:

- i) Ozone gas
- ii) Carbon dioxide
- iii) Carbon monoxide
- iv) Hydrogen gas

33. Spirogyra can reproduce by:

- i) Fission
- ii) Vegetative propagation
- iii) Fragmentation
- iv) Regeneration

34. The amount of DNA in a new generation is:

- i) Double than previous
- ii) Equal to the Previous
- iii) Half of the previous
- iv) Three times than previous