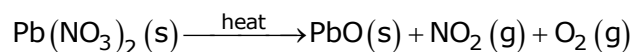


**General Instructions:**

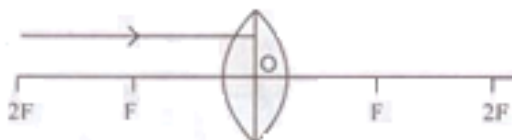
1. The question paper comprises of **two Sections, A and B**. You are to attempt both the Sections.
2. **All** questions are **compulsory**.
3. There is no overall choice. However, internal choice has been provided in some questions. Only one option in such questions is to be attempted.
4. All questions of **Section A** and all questions of **Section B** are to be attempted separately.
5. Questions number **1 to 6** in **Section A** and **17 to 19** in **Section B** are short answer questions. These questions carry **one mark each**.
6. Questions number **7 to 10** in **Section A** and **20 to 24** in **Section B** are short answer questions and carry **two marks each**.
7. Questions numbers **11 to 14** in **Section A** and **25 and 26** in **Section B** are also short answer questions and carry **three marks each**.
8. Question numbers **15 and 16** in **Section A** and **27** in **Section B** are long answer questions and carry **five marks each**.

**SECTION-A**

- Q1. Balance the following chemical equation.



- Q2. Fresh milk has a pH of 6. When it changes into curd (yogurt) will its pH value increase or decrease? Why?
- Q3. Name a reducing agent that may be used to obtain manganese from manganese dioxide.
- Q4. Why does a ray of light bend when it travels from one medium into another?
- Q5. Draw the given diagram in your answer book and complete it for the path of ray of light beyond the lens.



- Q6. Why does sky look blue on a clear day?
- Q7. A compound which is prepared from gypsum has the property of hardening when mixed with a proper quantity of water. Identify the compound. Write the chemical equation for its preparation. For what purpose is it used in hospitals?
- Q8.
- (a) What is the colour of ferrous sulphate crystals? How does this colour change after heating?
  - (b) Name: the products formed on strongly heating ferrous sulphate crystals. What type of chemical reaction occurs in this change?
- Q9. What is the minimum number of rays required for locating the image formed by a concave mirror for an object? Draw a ray diagram to show the formation of a virtual image by a concave mirror.
- Q10. A piece of wire of resistance  $20\ \Omega$  is drawn out so that its length is increased to twice its original length. Calculate the resistance of the wire in the new situation.
- Q11. What is meant by 'rusting'? With labeled diagrams, describe an activity to find out the conditions under which iron rusts.
- Q12. Give reasons for the following observations:
- (a) The element carbon forms a very large number of compounds.
  - (b) Air holes of a gas burner have to be adjusted when the heated vessels get blackened by the flame.
  - (c) Use of synthetic detergents causes pollution of water.
- Q13. What is hypermetropia? State the two causes of hypermetropia. With the help of ray diagrams, show:
- i. the eye-defect hypermetropia
  - ii. correction of hypermetropia by using a lens
- Q14. Two resistors, with resistances  $5\ \Omega$  and  $10\ \Omega$  respectively are to be connected to a battery of emf  $6\ \text{V}$  so as to obtain:
- (a) How will you connect the resistances in each case?
    - (i) minimum current flowing (ii) maximum current flowing
  - (b) Calculate the strength of the total current in the circuit in the two cases.

Q15.

- (a) Which two criteria did Mendeleev use to classify the elements in his periodic table?
- (b) State Mendeleev's periodic law.
- (c) Why could no fixed position be given to hydrogen in Mendeleev's periodic table?
- (d) How and why does the atomic size vary as you go:
  - i) From left to right along a period?
  - ii) Down a group?

OR

- (a) Why did Mendeleev have gaps in his periodic table?
- (b) State any three limitations of Mendeleev's classification.
- (c) How do electronic configurations of atoms change in a period with increase in atomic number?

Q16.

- (a) What is a magnetic field? How can the direction of magnetic field lines at a place be determined?
- (b) State the rule for the direction of the magnetic field produced around a current carrying conductor. Draw sketch of the pattern of field lines due to a current flowing through a straight conductor.

OR

- (a) What is a solenoid? Draw a sketch of the pattern of field lines of the magnetic field through and around a current carrying solenoid.
- (b) Consider a circular loop of wire lying in the plane of the table. Let the current pass through the loop clockwise. Apply the right hand rule to find out the direction of the magnetic field inside and outside the loop.

## SECTION-B

- Q17. What are the two main components of our environment?
- Q18. What will happen to a plant if its xylem is removed?
- Q19. Name two tissues that provide control and coordination in multi cellular animals.
- Q20. What natural resources? State two factors that work against an equitable distribution of these resources.
- Q21. What is water harvesting? Mention any water harvesting structures.
- Q22. What are 'nastic' and 'curvature' movements? Give one example of each.
- Q23. What is biogas? Why is biogas considered an ideal fuel for domestic use?
- Q24.
- (a) Distinguish between renewable and non-renewable sources of energy.
  - (b) Choose the renewable sources of energy from the following list: Coal, biogas, sun, natural gas
- Q25. Explain analogous organs and homologous organs. Identify the analogous and homologous organs amongst the following:
- Wings of an Insect, wings of a bat, forelimbs of frog, forelimbs of a human
- Q26. (a) Explain the terms:
- i) Implantation
  - ii) Placenta
- (b) What is the average duration of human pregnancy?
- Q27.
- (a) Draw a diagram of human alimentary canal and label on it:  
Oesophagus, Gall bladder, Liver and Pancreas
  - (b) Explain the statement, 'Bile does not contain any enzyme but it is essential for digestion'.

OR

(a) Draw a diagram of excretory system in human beings and label on it:

Aorta, vena cava, urinary, bladder, urethra

(b) List two vital functions of the kidney.