

# SSC EXAMINATION

## PHYSICAL SCIENCE MOST IMPORTANT



### LONG QUESTIONS:- [6 MARKS]



1. Factors that influence ionization energy.
2. Experimental procedure to verify ohm's law.



3. Differences between concave and convex mirrors
4. List out the materials required and experimental procedure in the experiment for observing the types of images and measuring the object distance and image distance from the concave mirror.
5. Postulates and limitations of Bohr's atomic model.
6. Explain how does the periodic properties of elements of ionization energy and atomic size changes in groups and periods in the modern periodic table
7. Explain the formation of boron-tri-fluoride molecule by hybridization.
8. Explain the formation of  $N_2$  and  $O_2$  molecules by using valence bond theory.

9. How do you verify that resistance of a conductor of uniform cross-section area is proportional to the length of the conductor and explain it at constant temperature
10. List out the material required to conduct a stated experiment with precautions and explain the experimental procedure.



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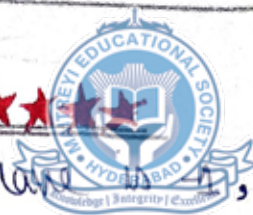
11. The radius of curvature of a concave mirror is 6cm. Draw the ray diagram for an object placed on principal axis at 8cm and 4cm distance in front of the mirror.
12. Hydrogen reacts with oxygen to produce water. What will be mass of the water produced if 100gms of hydrogen participated in the reaction? Calculate the number of molecules of water produced in this reaction.  
[Atomic masses:  $H = 1u$ ,  $O = 16u$ ].
13. Write the required materials and experimental procedure for the experiment, "Hydrochloric acid reacts with Zn pieces and liberates  $H_2$ ".
14. Explain the behaviour of light rays in any four situations of their incidence on a convex lens.
15. Draw the ray diagram to form the image when the object is placed between  $F$  and  $C$  on the principle axis of a convex lens. Explain the characteristics of the image formed.

An object at infinity with a height of 12 cm is placed in front of a convex lens and forms a point image. Draw diagram and write the characteristics of the image.



17. Explain the formation of rainbow
18. Draw the diagram of myopia and hypermetropia defect in human eye and also draw its correction
19. Explain Hund's rule with electronic configuration of Carbon and Aufbau principle with mollier chart.
20. Importance of quantum numbers in predicting the positions of an electron in an atom.
21. Working process of induction stove
22. Explain the precautions to be taken in the experiment to show air and water are essential for rusting iron articles
23. Write the names of any three types of chemical reactions of Carbon compounds and give examples.
24. Explain the cleansing action of soap.
25. Explain Hund's rule with electronic configuration
26. Explain the Experimental procedure to show  $\frac{V}{r}$  is constant for a conductor and mention the precautions

## SHORT ANSWER QUESTIONS.



1. The Magnification of the image by the convex lens. Then write characteristics of the image.
2. Write the chemical equation of the reaction, when Hydrogen react with oxygen and forms water. Balance the equation.
3. Explain the use and nature of antacids.
4. Write the uses of lenses in day to day life.
5. During the sunset and sun-rise, sun appears red. Why?



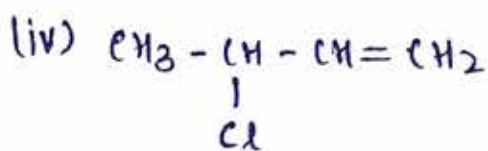
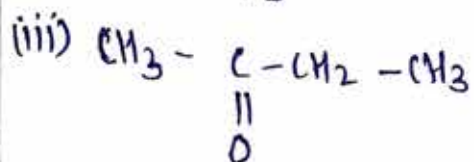
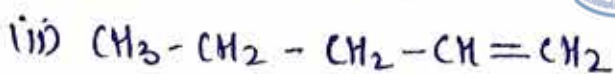
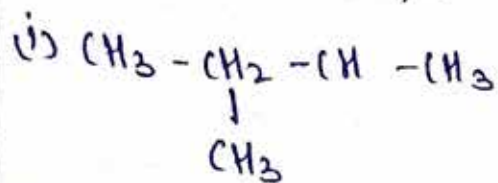
6. Explain Aufbau principle with examples.
7. How do you correct the eye defect myopia?
8. Write the electronic configuration of  $\text{Na}^+$  and  $\text{Cl}^-$ .
9. Explain ionic bond with suitable example.
10. Differences between ohmic and non-ohmic conductors.
11. Applications of Faraday's "Electromagnetic induction".
12. Physical methods of concentration of the ore.



13. Differences between roasting and calcination.
14. Write precautions to prevent corrosion of metals in your daily life.

15. Write the types of allotropes of Carbon.

16. Write the IUPAC names of the following compounds



17. Write the general formula of Alkanes.

18. Mention the names of unsaturated hydrocarbons

19. Write the homologous series of Alkynes.

20. Write the formula of Hexyne.

21. A bulb is marked as 60 W and 240 V, then find the resistance (R) of the bulb if current flows through it in normal condition

22. Write the uses of washing soda in day to day life

23. Write the uses of bleaching powder in day to day life

24. Write the uses of baking soda.

## VERY SHORT ANSWERS QUESTIONS.



1. Write the uses of convex mirror in day to day life
2. Write the required material in the experiment 'acids reacts with metals'.
3. What would happen if ciliary muscles do not function properly?
4. What would happen, if human eye lens does not undergo 'accomodation'?
5. Draw the ray diagram
6. What happens if the magnetic field cannot supply force on current carrying wire?
7. Write two uses of nano tubes?



8. Write the uses of graphite in day to day life
9. Write the uses of ethanol in day to day life
10. Write the required materials, chemicals for "esterification reaction" activity.
11. List out the materials required to prove corrosion of iron occurs in presence of water and air.



12. What would happen, if the metals like copper and iron do not get oxidized?
13. Write the daily life application of Faraday's law of electromagnetic field.
14. What happens when a current carrying coil/wire is placed in a magnetic field?
15. What will happen if household electric appliances are connected in series?
16. Draw the Lewis electron dot structure for the Nitrogen and chlorine atoms.
17. Does the focal length of lens is same in all media?
18. Write the uses of plaster of Paris?
19. What happens, if sulfuric acid ( $H_2SO_4$ ) is used instead of Hydrochloric acid (HCl)
20. Write the uses of spherical mirrors.

# Most Important Diagrams

OHM'S LAW EXPERIMENT

Key

The diagram includes a key that defines the symbols used: V for voltmeter, A for ammeter, R for the fixed resistor (bulb), B for the battery, and S for the switch. This key ensures that anyone reading the diagram understands what each component represents.

OHM'S LAW EXPERIMENT

The Switch, labelled S, is a device used to open or close the electrical circuit. When the switch is closed, the circuit is complete, and current can flow. When it is open, as shown in the diagram, the circuit is broken, and no current can flow.

OHM'S LAW EXPERIMENT

The voltmeter is in parallel with the light bulb, which is the resistor in this circuit. It is represented by the capital letter V inside a circle. A voltmeter is a tool used to measure the potential difference, or voltage, between two points in an electrical circuit. In this case, it is measuring the voltage across the bulb.

OHM'S LAW EXPERIMENT

The ammeter, represented by the letter A inside a circle, is connected in series within the circuit. This device is used to measure the current flowing through the circuit. In an Ohm's Law experiment, the ammeter measures the current that passes through the lightbulb.

OHM'S LAW EXPERIMENT

The Battery

The battery, labeled as B, is the power source for this circuit. It provides the direct current (DC) needed to power the lightbulb. The long and short parallel lines symbolize a cell, and several of these cells together form a battery.

OHM'S LAW EXPERIMENT

Overview

This is an electrical circuit diagram that shows how an experiment is set up to verify Ohm's Law. The components of this simple circuit are a resistor (represented by a lightbulb), an ammeter, a voltmeter, a battery, and a switch. Ohm's law states that the voltage across a resistor is directly proportional to the current flowing through it.

OHM'S LAW EXPERIMENT

The Resistor

In this circuit, the resistor is represented by a lightbulb, labelled with the letter R. A resistor is a passive electrical component that creates electrical resistance as a circuit element. In this experiment, the lightbulb is used as a fixed resistor.

OHM'S LAW EXPERIMENT

Title

The diagram is labelled with two titles: one at the top and a similar one at the bottom. These state that this is a circuit diagram illustrating the experiment to verify Ohm's Law.

### Plane Mirror

### Concave Mirror

### Convex Mirror

RAY DIAGRAM FOR CONCAVE MIRROR

IMAGE FORMATION WITH CONCAVE MIRROR WHEN OBJECT PLACED AT BETWEEN F AND C

Object

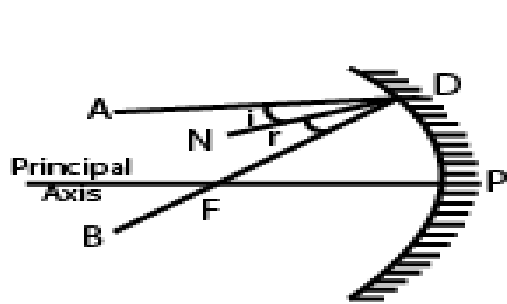
Image

Principal axis

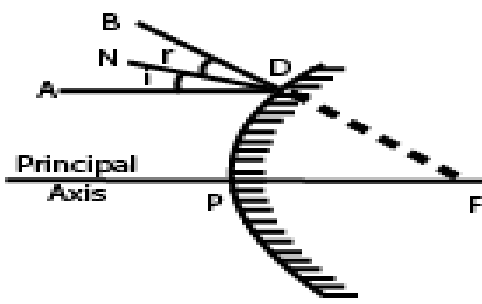
P - pole point

F - focal point

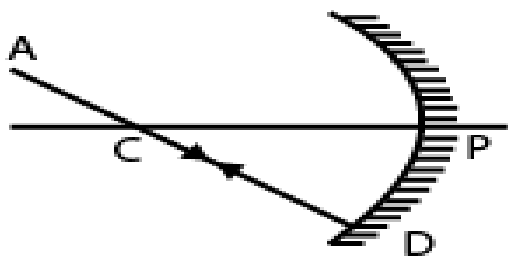
C - center of curvature



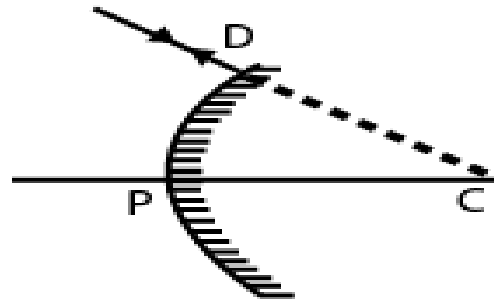
(a) Concave Mirror



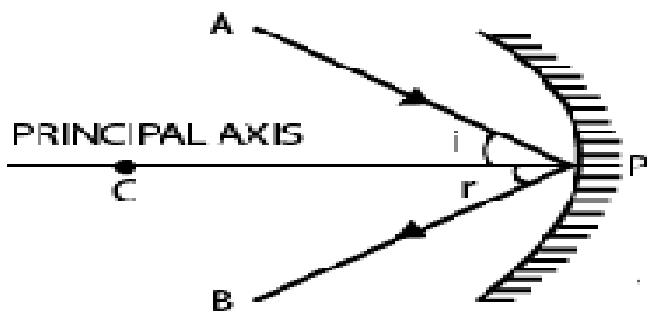
(b) Convex Mirror



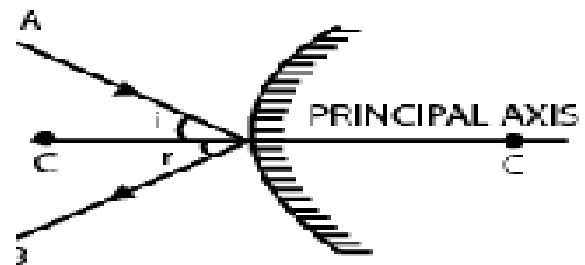
(a) Concave Mirror



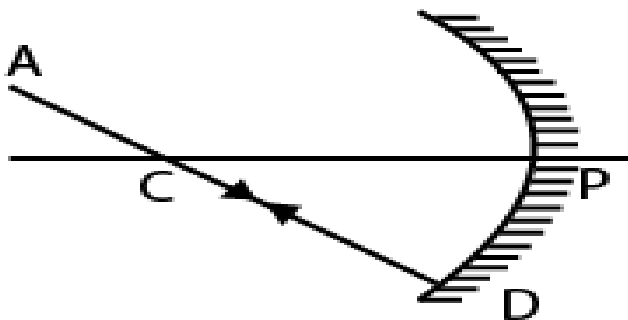
(b) Convex Mirror



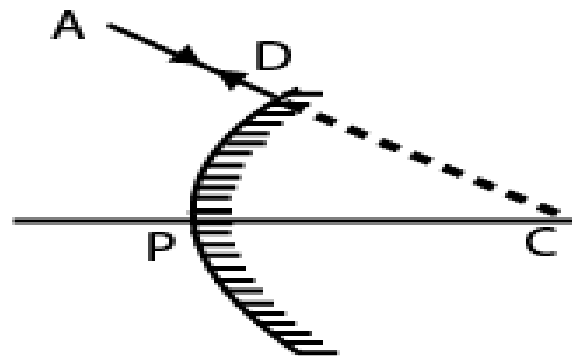
(a) Concave Mirror



(b) Convex Mirror



(a) Concave Mirror



(b) Convex Mirror

# Plane Mirror (diagram on page 1)

