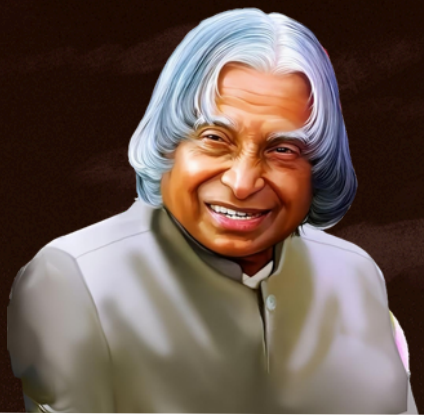
SSC Public Examinations - 2026

PHYSICAL SCIENCE

100 Days Action Plan



3 MODEL PAPERS + 2 MODEL PAPERS WITH ANSWERS

As per new blue print released by Board of Secondary Education, AP

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MODEL PAPER – 1 (2025-2026)

CLASS - 10

GENERAL SCIENCE - Paper – I (Physical Science)

Time: 2 Hours **(English Version)** **Maximum Marks: 50**

Instructions:

1. Question paper consists of 4 sections and 17 Questions.
2. Internal Choice is there only for Q.No.12 in Section –III and for all the Questions in Section –IV.
3. In the duration of 2 hours, 15 minutes of time is allotted to read the Question paper.
4. All answers should be written in the answer booklet only.
5. Answer should be written neatly and legibly.

SECTION - I 8 x 1 = 8

Notes: 1. Answer **ALL** the questions.
2. Each question carries **1** mark.

1. Why do we apply paint on iron articles?

Ans: By applying paint on iron articles, they can be prevented from corrosion.

2. Food cans are coated with tin and not with zinc because

A) zinc is costlier than tin. **B) zinc has a higher melting point than tin.**

C) zinc is more reactive than tin. **D) zinc is less reactive than tin.**

Ans: C) zinc is more reactive than tin.

3. What reaction is used in the hydrogenation of vegetable oils?

Ans: An addition reaction.

4. Find the focal length of a convex mirror whose radius of curvature is 32 cm.

Ans: Focal length of a convex mirror (f) = $\frac{R}{2} = \frac{32}{2} = 16\ cm$

5. The change in the curvature of the eye lens can thus change its _____

Ans: focal length

6. Draw the symbol of a battery or combination of cells.

Ans:

7. Which material is the best conductor of electricity?

Ans: Silver

8. How can three resistors of resistances 2 Ω, 3 Ω and 6 Ω be connected to give a total resistance of 11 Ω?

Ans: Series connection.

SECTION - II 3 x 2 = 6

Notes: 1. Answer **ALL** the questions.
2. Each question carries **2** marks.

9. Plaster of Paris should be stored in a moisture-proof container. Explain why?

Ans: Plaster of Paris is a white powder and on mixing with water or presence of moisture, it sets into hard solid mass due to the formation of gypsum. So, Plaster of Paris should be stored in moisture – proof container.

10. What is a homologous series? Explain with an example.

Ans: Series of compounds in which the same functional group substitutes for hydrogen in a carbon chain is called a homologous series. Example: CH_3OH, C_2H_5OH and C_3H_7OH.

The difference between the formulae of any two successive members is - CH_2.

11. One-half of a convex lens is covered with a black paper. Will this lens produce a complete image of the object? Verify your answer

Ans: Every part of a lens forms an image. When one-half of a convex lens is covered with a black paper, it still forms the complete image of the object as remaining part of lens. But intensity of the image is reduced.

SECTION – III 3 x 4 = 12

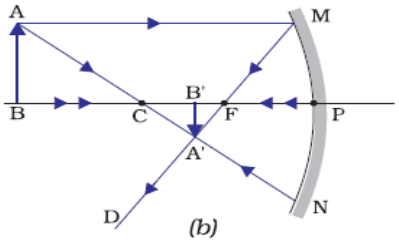
Notes: 1. Answer **ALL** the questions.
2. Each question carries **4** marks.

12. Draw any one of the following diagrams:

A) Draw the ray diagrams of image formed when the object is placed infront of a concave mirror in the following positions.

(a) Beyond C **(b) At F**

Ans:



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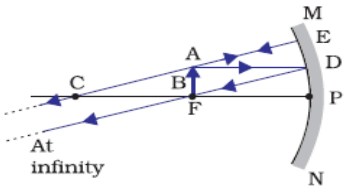
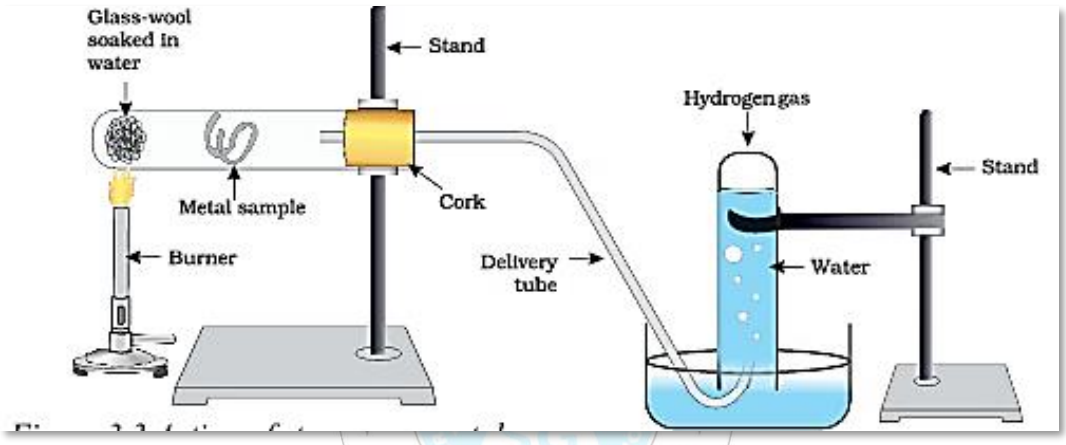


(e)

(OR)

B) Draw a neat diagram to show the action of steam on a metal

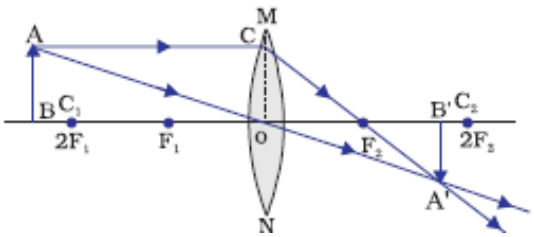
Ans:



13. Write any two advantages of a) avoiding corrosion and b) thermite process.

Ans: i) Chlorine is used in bleaching powder.
ii) Diamond is used in cutting of glass
iii) Carbon is used in lubricants.
iv) Nitrogen used in manufacturing of ammonia.
v) Iodine is used as tincture iodine.
vi) Oxygen is used in breathing cylinders. **(Write any four uses)**

14.



Observe the ray diagram and answer the following questions.

i) Which lens used in this ray diagram?
ii) Where is the position of the object?
iii) Where the position of the image?
iv) What is the nature of the image?

Ans: i) Convex lens
ii) Beyond $2F_1$
iii) Between F_2 and $2F_2$
iv) Real, Inverted and diminished

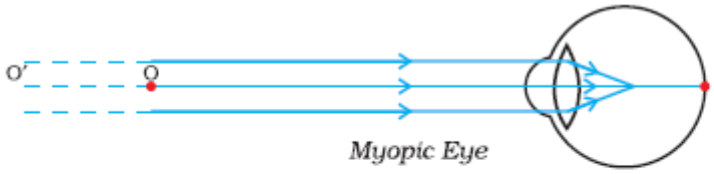
SECTION - IV **3 x 8 = 24**

Notes: 1. Answer **ALL** the questions.
2. Each question carries **8** marks.
3. Each question has internal choice.

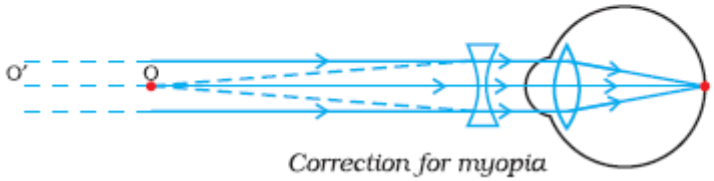
15. What is Myopia? How do you correct the eye defect Myopia?

Ans: Myopia:

i) Myopia is also known as nearsightedness.
ii) A person with myopia can see nearby objects clearly but cannot see distant objects distinctly.
iii) A person with this defect has the far point nearer than infinity. Such a person may see clearly upto a distance of a few metres.
iv) In a myopic eye, the image of a distant object is formed in front of the retina and not at the retina itself.
v) This defect may arise due to i) excessive curvature of the eye lens or ii) elongation of the eyeball.
vi) This defect can be corrected by using a concave lens of suitable power.
vii) A concave lens of suitable power will bring the image back on to the retina and thus the defect is corrected.



Myopic Eye



Correction for myopia

(OR)

Explain the following

i) Electric current **ii) Potential difference** **iii) Ohm's law** **iv) Electric power**

Ans: i) Electric current

The net charge flows across any cross-section of a conductor in unit time is called electric current.

$$I = \frac{Q}{t}$$

SI unit of electric current is ampere

ii) Potential difference

The amount of work done in moving a unit positive charge from one point to another point in the field.

$$V = \frac{W}{Q}$$

SI unit of potential difference is 'volt'.

iii) Ohm's law

The potential difference across the ends of a resistor is directly proportional to the current through it, provided its temperature remains the same.

V = IR

SI unit of resistance is 'ohm'.

iv) Electric power

The rate of doing electric work is called electric power.

P = VI

SI unit of electric power is 'watt'.

16. Balance the following chemical equations

i) $HNO_3 + Ca(OH)_2 \rightarrow Ca(NO_3)_2 + H_2O$
ii) $NaOH + H_2SO_4 \rightarrow Na_2SO_4 + H_2O$
iii) $NaCl + AgNO_3 \rightarrow AgCl + NaNO_3$
iv) $BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + HCl$

Ans: **(i)** **$HNO_3 + Ca(OH)_2 \rightarrow Ca(NO_3)_2 + H_2O$**

$2HNO_3 + Ca(OH)_2 \rightarrow Ca(NO_3)_2 + 2H_2O$

(ii) **$NaOH + H_2SO_4 \rightarrow Na_2SO_4 + H_2O$**

$2NaOH + H_2SO_4 \rightarrow Na_2SO_4 + 2H_2O$

(iii) **$NaCl + AgNO_3 \rightarrow AgCl + NaNO_3$**

$NaCl + AgNO_3 \rightarrow AgCl + NaNO_3$

(iv) **$BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + HCl$**

$BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + 2HCl$

(OR)

Complete the following table.

Functional group	Suffix	Formula of functional group	Example
Alcohol			**CH_3OH**
Aldehyde	**- al**		
		- CO-	**CH_3COCH_3**
	- oic acid		**CH_3COOH**

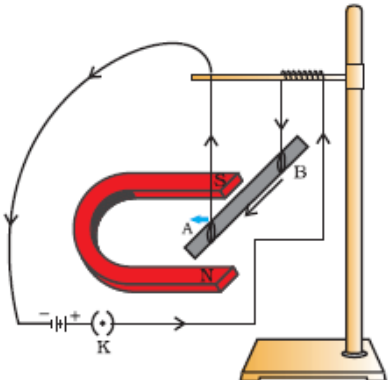
Ans:

Functional group	Suffix	Formula of functional group	Example
Alcohol	**- ol**	**- OH**	CH_3OH
Aldehyde	- al	**- CHO**	**CH_3CHO**
Ketone	**- one**	- CO-	CH_3COCH_3
Carboxylic acid	- oic acid	**- COOH**	CH_3COOH

17. Describe an activity on force experienced by a current-carrying conductor placed in a magnetic field.

Ans: **Aim:** To show that the force experienced by a current-carrying conductor placed in a magnetic field.

Required materials: Small aluminium rod, Strong horse-shoe magnet, Battery, Plug key, Vertical stand, Connecting wires.



Procedure: 1. Take a small aluminium rod AB (of about 5 cm). Using two connecting wires suspend it horizontally from a stand, as shown in Fig.

2. Place a strong horse-shoe magnet in such a way that the rod lies between the two poles with the magnetic field directed upwards. For this put the north pole of the magnet vertically below and south pole vertically above the aluminium rod.
3. Connect the aluminium rod in series with a battery, a key and a rheostat.
4. Now pass a current through the aluminium rod from end B to end A.
5. We observed that the rod is displaced towards the left and rod gets displaced.
6. Reverse the direction of current flowing through the rod and observe the direction of its displacement. It is now towards the right.

Observations: The aluminium rod gets displaced because a force is exerted on the current-carrying rod when it is placed in a magnetic field.

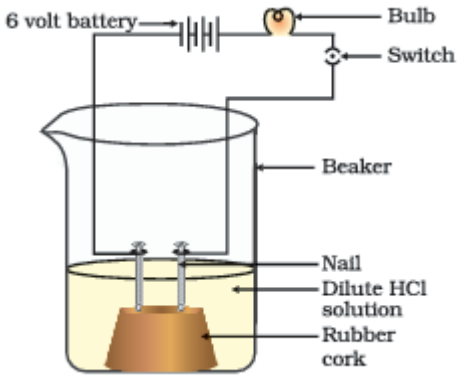
(OR)

Compounds such as alcohols and glucose also contain hydrogen but are not categorised as acids. Describe an Activity to prove it.

Ans: **Aim:** To show that acid solution in water conducts electricity.

Required Materials: Solutions of glucose, alcohol, hydrochloric acid, sulphuric acid, Beaker, Bulb, 6V battery, Nails, Rubber cork

Procedure:



i) Take solutions of glucose, alcohol, hydrochloric acid, sulphuric acid.
ii) Fix two nails on a cork, and place the cork in a 100 mL beaker.
iii) Connect the nails to the two terminals of a 6 volt battery through a bulb and a switch, as shown in Figure.
iv) Now pour some dilute HCl in the beaker and switch on the current.
v) Repeat with dilute sulphuric acid.
vi) The bulb will start glowing in the case of acids,
vii) Repeat the experiment separately with glucose and alcohol solutions.
viii) Glucose and alcohol solutions do not conduct electricity.

Observation: Glowing of the bulb indicates that there is a flow of electric current through the solution. The electric current is carried through the acidic solution by H^+ ions.

MODEL PAPER – 2 (2025-2026)

CLASS - 10

GENERAL SCIENCE - Paper – I (Physical Science)

Time: 2 Hours **(English Version)** **Maximum Marks: 50**

Instructions:

1. Question paper consists of 4 sections and 17 Questions.
2. Internal Choice is there only for Q.No.12 in Section –III and for all the Questions in Section –IV.
3. In the duration of 2 hours, 15 minutes of time is allotted to read the Question paper.
4. All answers should be written in the answer booklet only.
5. Answer should be written neatly and legibly.

SECTION - I 8 x 1 = 8

Notes: 1. Answer **ALL** the questions.
2. Each question carries **1** mark.

1. Predict, Exhalation air is hotter than Inhalation air in respiration process.

Ans: Exhalation air is hotter than Inhalation air because it absorbs heat from the respiratory system and the body during gas exchange.

2. What is the common name of the compound $CaOCl_2$?

Ans: Bleaching powder

3. What happens to the pink colour of phenolphthalein in a basic solution?

Ans: Pink colour in a basic solution.

4. Why oxides of high reactive metals cannot be reduced by carbon.

Ans: These metals have more affinity for oxygen than carbon.

5. Which of the flowing hydrocarbon undergoes substitution reaction?

A) C_2H_4 **B) C_5H_{10}** **C) C_4H_{10}** **D) C_3H_6**

Ans: C) C_4H_{10}

6. Find the power of a concave lens of focal length 2 m.

Ans: Focal length of a concave lens (f) = - 2 m

Power of a concave lens (P) = $\frac{1}{f} = \frac{1}{-2}$ = - 0.5 D

7. The splitting of white light into its component colours is called _____

Ans: dispersion of light

8. What is the lowest total resistance possible with four coils of 4Ω, 8Ω, 12Ω, 24Ω?

Ans: 2 Ω

SECTION - II 3 x 2 = 6

Notes: 1. Answer **ALL** the questions.
2. Each question carries **2** marks.

9. Write any two properties of Ethanol (Alcohol).

Ans: Ethanol is a liquid at room temperature, good solvent.

10. Write any two applications of concave mirrors.

Ans: Concave mirrors are commonly used in Torches, Searchlights, Vehicle Headlights, Shaving Mirrors, Dentist's Mirrors, Solar Furnaces. (Write any two uses)

11. Why are copper and aluminium wires usually employed for electricity transmission?

Ans: Copper and Aluminium wires possess low resistivity and as such are generally used for electricity transmission.

SECTION - III 3 x 4 = 12

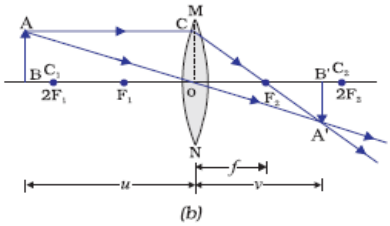
Notes: 1. Answer **ALL** the questions.
2. Each question carries **4** marks.

12. Draw any one of the following diagrams:

A) Draw the ray diagrams of image formed when the object is placed infront of a bi-convex lens in the following positions.

(a) Beyond $2F_1$ **(b) At $2F_1$**

Ans:



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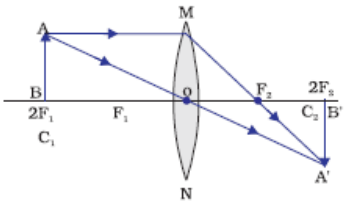


(OR)

B) Draw the diagram which shows that acid solution in water conducts electricity.

Ans:

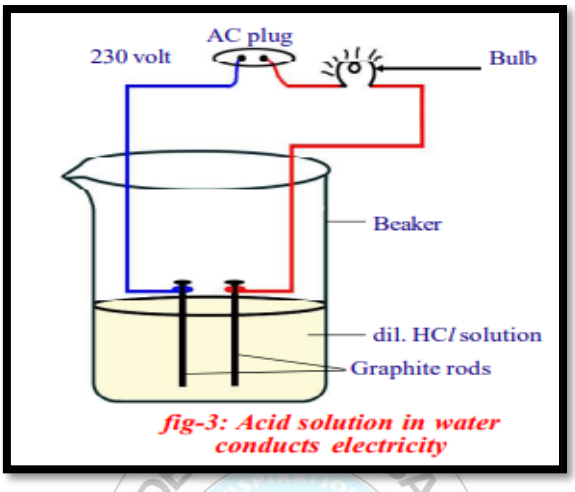


fig-3: Acid solution in water conducts electricity

13. What are the applications of pH in daily life.

Ans: a. Plants and animals has sensitive pH values

i)When acid rain flows in to the rivers, it lowers the pH of the river water, the survival of aquatic life in such rivers becomes difficult.

b. Tooth decay

i) Tooth decay starts when the pH of the mouth is lower than 5.5, It is corroded when the pH in the mouth is below 5.5.

c. p^H in our digestive system

i) During indigestion the stomach produces too much acid and this causes pain and irritation.

d. p^H of the soul

i) Plants require a specific pH range for their healthy growth.

14. Fill the table following, which is related to convex lens.

Position of the Object	Position of the Image	Relative Size of the image	Nature of the image
Beyond $2F_1$			**Inverted**
	At $2F_2$	**Same size**	
Between F_1 and $2F_1$		**Enlarged**	
	Behind the lens		**Erected**

Ans:

Position of the Object	Position of the Image	Relative Size of the image	Nature of the image
Beyond $2F_1$	**Between F_2 and $2F_2$**	**Diminished**	Real and inverted
At $2F_1$	At $2F_2$	Same size	**Real and inverted**
Between F_1 and $2F_1$	**Beyond $2F_2$**	Enlarged	**Real and inverted**
Between F_1 and optical centre O	Behind the lens	**Enlarged**	Erected

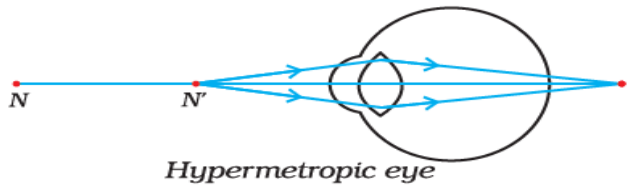
SECTION - IV **3 x 8 = 24**

Notes: 1. Answer **ALL** the questions.
2. Each question carries **8** marks.
3. Each question has internal choice.

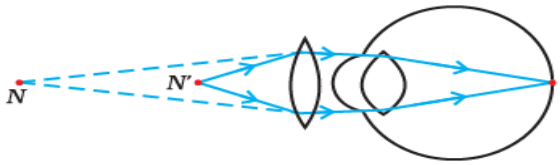
15. What is Hypermetropia? How do you correct the eye defect Hypermetropia?

Ans: Hypermetropia:

i) Hypermetropia is also known as farsightedness.
ii) A person with hypermetropia can see distant objects clearly but cannot see nearby objects distinctly.
iii) The near point, for the person, is farther away from the normal near point (25 cm). Such a person has to keep a reading material much beyond 25 cm from the eye for comfortable reading.
iv) This is because the light rays from a closeby object are focussed at a point behind the retina.
v) This defect arises either because i) the focal length of the eye lens is too long or ii) the eyeball has become too small.
vi) This defect can be corrected by using a convex lens of suitable power.
vii) A convex lens of suitable power will bring the image back on to the retina and thus the defect is corrected.



Hypermetropic eye



Correction for Hypermetropic eye

(OR)

Explain the following
i) Ohm's law **ii) Joule law of heat** **iii) Resistance** **iv) Resistivity**

Ans: i) Ohm's law

The potential difference across the ends of a resistor is directly proportional to the current through it, provided its temperature remains the same.
V = IR
SI unit of resistance is 'ohm'.

ii) Joule law of heat:

Joule's law of heating states that the heat produced in a conductor is directly proportional to the square of the current (I^2), the resistance (R), and the time (t) for which the current flows.
$H = I^2Rt$

iii) Resistance:

The obstruction to the motion of the electrons in a conductor is known as Resistance. It is denoted by 'R'.
S.I unit is ohm(Ω)

iv) Resistivity:

The resistance of a conductor of unit length and unit area of cross section is called Resistivity.
It is denoted by ' ρ'. S.I unit is ohm-metre(Ω-m)

16. Write the balanced chemical equations for the following reactions.

(a) Calcium hydroxide + Carbon dioxide → Calcium carbonate + Water
(b) Zinc + Silver nitrate → Zinc nitrate + Silver
(c) Aluminium + Copper chloride → Aluminium chloride + Copper
(d) Barium chloride + Potassium sulphate → Barium sulphate + Potassium chloride

Ans: (a) Calcium hydroxide + Carbon dioxide → Calcium carbonate + Water

$Ca(OH)_2 + CO_2 \rightarrow CaCO_3 + H_2O$

(b) Zinc + Silver nitrate → Zinc nitrate + Silver

$Zn + 2AgNO_3 \rightarrow Zn(NO_3)_2 + 2Ag$

(c) Aluminium + Copper chloride → Aluminium chloride + Copper

$2Al + 3CuCl_2 \rightarrow 2AlCl_3 + 3Cu$

(d) Barium chloride + Potassium sulphate → Barium sulphate + Potassium chloride

$BaCl_2 + K_2SO_4 \rightarrow BaSO_4 + 2KCl$

(OR)

Complete the following table.

No. of carbon in Hydro carbon	Alkane	Alkene	Alkyne
3	Propane		
4		Butene	
5			Pentyne
6		Hexene	

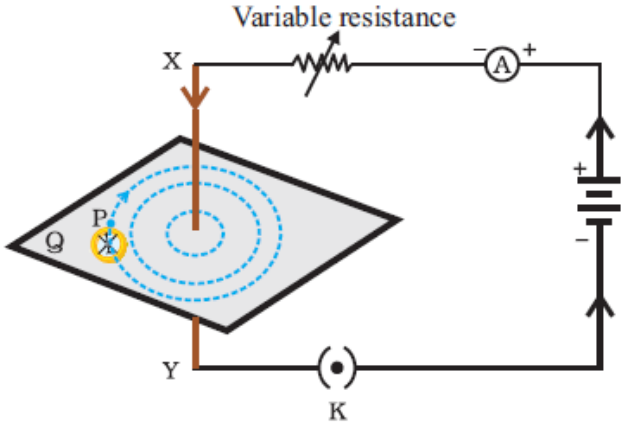
Ans:

No. of carbon in Hydro carbon	Alkane	Alkene	Alkyne
3	**Propane**	Propene	Propyne
4	Butane	**Butene**	Butyne
5	Pentane	Pentene	**Pentyne**
6	Hexane	**Hexene**	Hexyne

17. Describe an activity to draw the magnetic field produced around a current carrying straight conductor.

Ans: Aim: To study the magnetic field lines around a straight current carrying straight conductor.

Required materials: Battery, Variable resistance, Ammeter, Plug key, Thick copper wire, Cardboard, Iron filings.



Procedure: 1. As shown in the figure, connecting the circuit.

2. Insert the thick wire through the centre, normal to the plane of a rectangular cardboard. Take care that the cardboard is fixed and does not slide up or down.
3. Connect the copper wire vertically between the points X and Y, as shown in Fig. (a), in series with battery, a plug and key.
4. Sprinkle some iron filings uniformly on the cardboard.
5. Keep the rheostat at a fixed position and note the current through the ammeter. Close the key so that a current flows through the wire. Ensure that the copper wire placed between the points X and Y remains vertically straight.
6. Gently tap the cardboard a few times.
7. We Observe that the iron filings align themselves showing a pattern of concentric circles around the copper wire
8. Place a compass at a point (say P) over a circle. The direction of the north pole of the compass needle would give the direction of the field lines produced by the electric current through the straight wire at point P.

(OR)

How to show that metals are good conductors of heat with help an activity.

Ans: Aim: To show that metals are good conductors of heat.

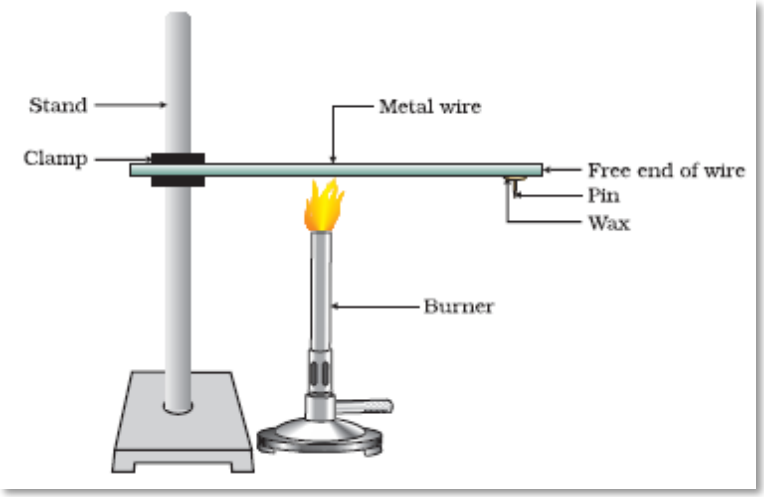
Required Materials: Copper/Aluminium wire, Stand, Clamp, Burner

Procedure: i) Take an aluminium or copper wire.

ii) Clamp this wire on a stand, as shown in Fig.

iii) Fix a pin to the free end of the wire using wax.

iv) Heat the wire with a spirit lamp, candle or a burner near the place where it is clamped.



Observations: i) When aluminium or copper wire is heated at one end, heat reaches the other end, melting the wax, and the pin gets detached.

ii) Metals are good conductors of heat.

MODEL PAPER – 3 (2025-2026)

CLASS - 10

GENERAL SCIENCE - Paper – I (Physical Science)

Time: 2 Hours **(English Version)** **Maximum Marks: 50**

Instructions:

1. Question paper consists of 4 sections and 17 Questions.
2. Internal Choice is there only for Q.No.12 in Section –III and for all the Questions in Section –IV.
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5. Answer should be written neatly and legibly.

SECTION - I **8 x 1 = 8**

Notes: 1. Answer **ALL** the questions.
2. Each question carries **1** mark.

1. Why, keeping food in air tight containers?

Ans: Oxidation of food can be slow down.

2. Which of the following pairs will give displacement reactions?

A) NaCl solution and copper metal **B) $MgCl_2$ solution and aluminium metal**

C) $FeSO_4$ solution and silver metal **D) $AgNO_3$ solution and copper metal.**

Ans: D) $AgNO_3$ solution and copper metal.

3. What is a series of compounds with the same functional group called?

Ans: A homologous series.

4. Find the focal length of a lens of power – 2.0 D?

Ans: Power of lens (P) = - 2.0 D

Focal length of the lens (f) = $\frac{1}{R} = \frac{1}{-2} = -0.5\ m$

5. The ability of eye lens to adjust its focal length is called _____

Ans: accommodation of lens

6. Draw the symbol of rheostat or variable resistance.

Ans:

7. How is an ammeter connected in a circuit?

Ans: Series in a circuit

8. Two resistors 3 Ω, 6 Ω are connected in parallel. What will be the resultant resistance?

Ans: $R = \frac{R1\ x\ R2}{R1+R2} = \frac{3x6}{3+6} = \frac{18}{9} = 2\Omega$

SECTION - II **3 x 2 = 6**

Notes: 1. Answer **ALL** the questions.
2. Each question carries **2** marks.

9. Why does distilled water not conduct electricity, whereas rain water does?

Ans: In Distilled water, the concentration of both H_3O^+ and OH^- is same. Distilled water is purest form of water. The extent of ionization is less for pure water. So, it is weak electrolyte hence it does not conduct of electricity.

10. Explain esterification reaction with an example.

Ans: Esters are most commonly formed by reaction of an acid and an alcohol.

$$CH_3COOH + C_2H_5OH \xrightarrow{\text{conc. } H_2SO_4} CH_3COOC_2H_5 + H_2O$$

Ethanoic acid — Ethanol — Ethyl ethanoate — water

11. Why do we prefer a convex mirror as a rear-view mirror in vehicles?

Ans: Convex mirror always forms virtual, erect and diminished images irrespective of distance of the object and also enables a driver to view large area of the traffic behind him.

SECTION - III 3 x 4 = 12

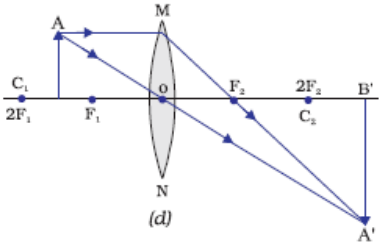
Notes: 1. Answer **ALL** the questions.
2. Each question carries **4** marks.

12. Draw any one of the following diagrams:

A) Draw the ray diagrams of image formed when the object is placed infront of a bi-convex lens in the following positions.

(a) Between F_1 and $2F_1$ **(b) At F_1**

Ans:



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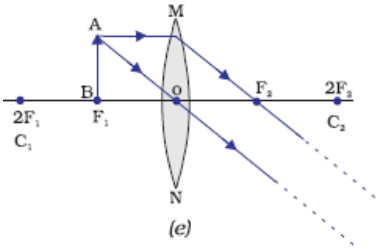
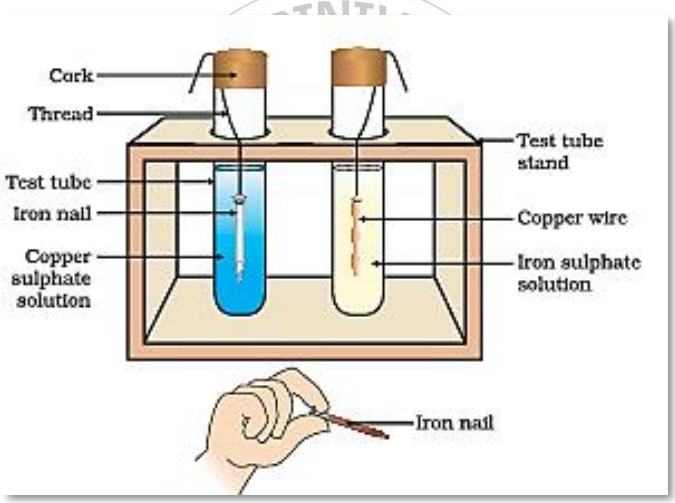


(e)

(OR)

B) Draw a neat diagram to show that high reactive metals displace low reactive metals from their compounds.

Ans:



13. Write any four uses of Non-metals.

Ans: i) Chlorine is used in bleaching powder.
ii) Diamond is used in cutting of glas
iii) Carbon is used in lubricants.
iv) Nitrogen used in manufacturing of ammonia.
v) Iodine is used as tincture iodine.
vi) Oxygen is used in breathing cylinders. **(Write any four uses)**

14.

Material medium	Air	Ice	Rubby	Benzene
Refractive Index	1.0003	1.31	1.71	1.50

Observe the table and answer the following questions.

i) Which material medium is optically rarer?
ii) Which material medium is optically denser?
iii) Write the relation between refractive index and speed of light in the medium?
iv) Arrange the above material media in the ascending order with respect to the speed of light.

Ans: i) Air
ii) Ruby
iii) $n \alpha 1/v$ (or) Inversely proportional
iv) Ruby, Benzene, Ice, Air

SECTION - IV **3 x 8 = 24**

Notes: 1. Answer **ALL** the questions.
2. Each question carries **8** marks.
3. Each question has internal choice.

15. Explain the following.
i) Scattering of light **ii) Formation of Rainbow**

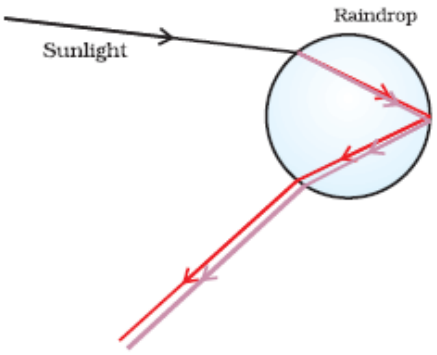
Ans: a) Scattering of light

i) The blue colour of the sky, colour of water in deep sea, the reddening of the sun at sunrise and the sunset are some of the wonderful phenomena.

ii)The scattering of light by colloidal particles. The path of a beam of light passing through a true solution is not visible. However, its path becomes visible through a colloidal solution where the size of the particles is relatively larger.

ii) Formation of Rainbow

A rainbow is a natural spectrum appearing in the sky after a rain shower. It is caused by dispersion of sunlight by tiny water droplets, present in the atmosphere. A rainbow is always formed in a direction opposite to that of the Sun. The water droplets act like small prisms. They refract and disperse the incident sunlight, then reflect it internally, and finally refract it again when it comes out of the raindrop. Due to the dispersion of light and internal reflection, different colours reach the observer's eye.



(OR)

Write the S.I Unit of the following
a) Electric Charge **b) Electric Current** **c) Potential difference** **d) Resistance**
e) Resistivity **f) Electric power** **g) Commercial unit of Electric Energy** **h) Heat**

Ans: a) coloumb (or) C
b) ampere (or) A
c) volt (or) V
d) ohm (or) Ω
e) ohm-meter (Ω-m)
f) watt (or) W
g) kilowatt hour (or) KWH
h) joule (or) J

16. Write the balanced chemical equation
(a) Potassium bromide(aq) + Barium iodide(aq) → Potassium iodide(aq) + Barium bromide(s)
(b) Zinc carbonate(s) → Zinc oxide(s) + Carbon dioxide(g)
(c) Hydrogen(g) + Chlorine(g) → Hydrogen chloride(g)
(d) Magnesium(s) + Hydrochloric acid(aq) → Magnesium chloride(aq) + Hydrogen(g)

Ans: (a) Potassium bromide(aq) + Barium iodide(aq) → Potassium iodide(aq) + Barium bromide(s)
$2KBr(aq) + BaI_2(aq) \rightarrow 2KI(aq) + BaBr_2(s)$ Double Displacement Reaction
(b) Zinc carbonate(s) → Zinc oxide(s) + Carbon dioxide(g)
$ZnCO_3(s) \rightarrow ZnO(s) + CO_2(g)$ Decomposition Reaction
(c) Hydrogen(g) + Chlorine(g) → Hydrogen chloride(g)
$H_2(g) + Cl(g) \rightarrow 2HCl(q)$ Combination Reaction
(d) Magnesium(s) + Hydrochloric acid(aq) → Magnesium chloride(aq) + Hydrogen(g)
$Mg(s) + 2HCl(aq) \rightarrow MgCl_2(aq) + H_2(g)$ Displacement Reaction)

(OR)

Complete the following table.

No. of carbon in Hydro carbon	Alkane	Alkene	Alkyne
3	C_3H_8		
4		C_4H_8	
5			C_5H_8
6		C_6H_{12}	

Ans:

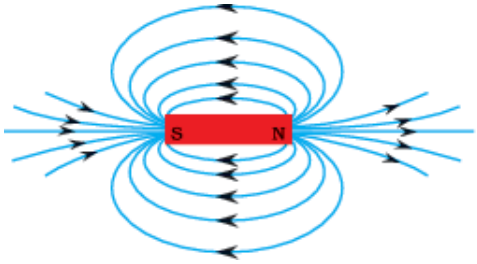
No. of carbon in Hydro carbon	Alkane	Alkene	Alkyne
3	C_3H_8	C_3H_6	C_3H_4
4	C_4H_{10}	C_4H_8	C_4H_6
5	C_5H_{12}	C_5H_{10}	C_5H_8
6	C_6H_{14}	C_6H_{12}	C_6H_{10}

17. Describe with the help of an activity to draw the magnetic field lines around a bar magnet.

Ans: To draw the magnetic field lines around a bar magnet.

Required Materials: Small compass, Bar magnet, White sheet, Drawing board.

Procedure:



1) Take a small compass and a bar magnet.
2) Place the magnet on a sheet of white paper fixed on a drawing board, using some adhesive material.
3) Mark the boundary of the magnet. Place the compass near the north pole of the magnet.
4) The south pole of the needle points towards the north pole of the magnet.
5) The north pole of the compass is directed away from the north pole of the magnet.
6) Mark the position of two ends of the needle.
7) Now move the needle to a new position such that its south pole occupies the position previously occupied by its north pole.
8) In this way, proceed step by step till you reach the south pole of the magnet as shown in Figure.
9) Join the points marked on the paper by a smooth curve. This curve represents a field line.
10) Repeat the above procedure and draw as many lines and will get a pattern shown in Figure.
11) These lines represent the magnetic field around the magnet. These are known as magnetic field lines.

Observation: The magnetic field lines around a bar magnet.

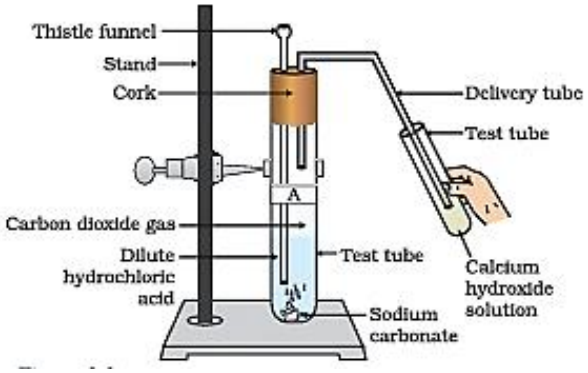
(OR)

Write an activity to show that metal carbonates and metal hydrogen carbonates react with acids.

Ans: Aim: CO_2 gas evolved when Metal carbonates and metal hydrogen carbonates react with Acids.

Required Materials: Stand, Test tubes, sodium carbonate, sodium hydrogen carbonate, dilute HCl, Delivery tube, Thistle funnel, Lime water.

Procedure:



i) Take two test tubes, label them as A and B.
ii) Take about 0.5 g of sodium carbonate (Na_2CO_3) in test tube A and about 0.5 g of sodium hydrogen carbonate ($NaHCO_3$) in test tube B.
iii) Add about 2 mL of dilute HCl to both the test tubes.
iv) CO_2 gas evolved in both test tubes A and B.
v) Pass the gas produced in each case through lime water (calcium hydroxide solution) as shown in Figure.
vi) We observe that a milky precipitate of calcium carbonate formed.

Observation: CO_2 gas evolved when Metal carbonates and metal hydrogen carbonates react with acids.

SSC PUBLIC EXAMINATIONS 2025-26

GENERAL SCIENCE - Paper – I

PHYSICAL SCIENCE (MODEL PAPER -1)

Time: 2 Hours **(English Version)** **Maximum Marks: 50**

Instructions:

1. Question paper consists of 4 sections and 17 Questions.
2. Internal Choice is there only for Q.No.12 in Section –III and for all the Questions in Section –IV.
3. In the duration of 2 hours, 15 minutes of time is allotted to read the Question paper.
4. All answers should be written in the answer booklet only.
5. Answer should be written neatly and legibly.

SECTION - I 8 x 1 = 8

Notes: 1. Answer **ALL** the questions.
2. Each question carries **1** mark.

1. A magnesium ribbon is burnt in the presence of Oxygen to give Magnesium oxide. Rewrite the above reaction as Chemical equation.

Ans: $2Mg + O_2 \rightarrow 2MgO$

2. Give example for an acid

Ans: Hydrochloric acid (or) HCl

3. The pH value of a solution is 10. What is its colour in the presence of methyl orange indicator?

Ans: Yellow

4. Propose a method to extract a highly reactive metal from its ore?

Ans: Electrolysis.

5. Which of the flowing hydrocarbon undergoes addition reaction?

A) C_2H_6 **B) C_3H_8** **C) CH_4** **D) C_3H_6**

Ans: D) C_3H_6

6.The change in focal length of eye lens is caused by the action of the _____

Ans: Ciliary muscles

7. The radius of curvature of a spherical mirror is given as 20 cm then Determine it's focal length.

Ans: Focal length of a spherical mirror (f) = $\frac{R}{2} = \frac{20}{2}$ = 10 cm

8. 2 Ω, 4 Ω resistors are connected in series. What will be the resultant resistance?

Ans: $R=R_1+ R_2 = 2 + 4 = 6$ Ω

SECTION - II 3 x 2 = 6

Notes: 1. Answer **ALL** the questions.
2. Each question carries **2** marks.

9. What are the two properties of carbon which lead to the huge number of carbon compounds we see around us?

Ans: Catenation, Tetravalency.

10. Write any two daily life applications of lenses.

Ans: Lenses are commonly used in vision correction, Magnifying objects, photography and Medical equipment.

11. Predict and write why the series arrangement is not used for domestic circuits?

Ans: In case of series arrangement, if one component fails the circuit is broken and none of the components works. So,the series arrangement is not used for domestic circuits.

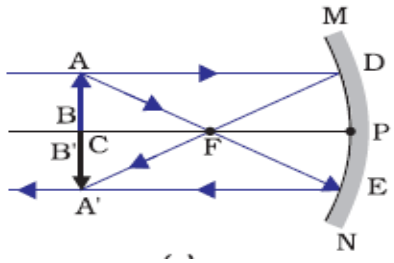
SECTION - III 3 x 4 = 12

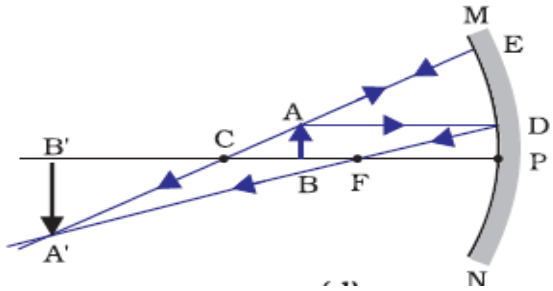
Notes: 1. Answer **ALL** the questions.
2. Each question carries **4** marks.

12. Draw any one of the following diagrams:

A) Draw the ray diagrams of image formed when the object is placed infront of a concave mirror in the following positions.

i) At C **ii) Between F and C**





(OR)

B) Draw the diagram to show the ration of metals with acids.

Ans:

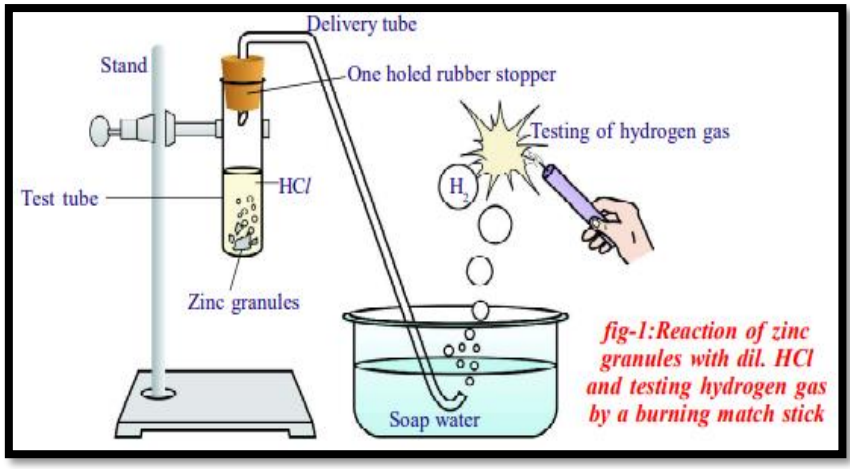


fig-1:Reaction of zinc granules with dil. HCl and testing hydrogen gas by a burning match stick

13. Write the uses of Bleaching powder

Ans: i) for bleaching cotton and linen in the textile industry, for bleaching wood pulp in paper factories
ii) for bleaching washed clothes in laundry;
iii) as an oxidising agent in many chemical industries; and
iv) to make drinking water free from germs.

14. Different media and their Refractive indices were given in the following table. Based on the data given, answer the questions given below.

Material medium	Air	Ice	Water	Benzene
Refractive Index	1.0003	1.31	1.33	1.50

i) Arrange the above material media in the ascending order with respect to the speed of light.
ii) Which material medium is optically denser in between Water and Benzene?
iii) Determine the speed of light in Benzene? (C = 3 x 10^8 m/s)
iv) Which is the most optically rarer medium from the table.

Ans: i) Benzene, Water, Ice, Air
ii) Benzene
iii) Speed of light in Benzene (v) = C/n= 3 x 10^8/1.5 = 2 x 10^8 m/s
iv) Air

SECTION - IV **3 x 8 = 24**

Notes: 1. Answer **ALL** the questions.
2. Each question carries **8** marks.
3. Each question has internal choice.

15. A) What is Hypermetropia? How do you rectify it? Write in detailed.

Ans: Hypermetropia:

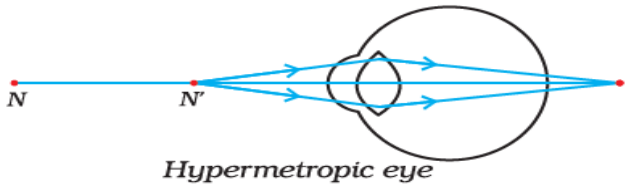
vii) Hypermetropia is also known as farsightedness.
ii) A person with hypermetropia can see distant objects clearly but cannot see nearby objects distinctly.
iii) The near point, for the person, is farther away from the normal near point (25 cm). Such a person has to keep a reading material much beyond 25 cm from the eye for comfortable reading.

iv) This is because the light rays from a closeby object are focussed at a point behind the retina.

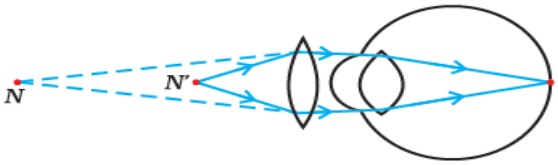
vii) This defect arises either because i) the focal length of the eye lens is too long or ii) the eyeball has become too small.

vii) This defect can be corrected by using a convex lens of suitable power.

vii) A convex lens of suitable power will bring the image back on to the retina and thus the defect is corrected.



Hypermetropic eye



Correction for Hypermetropic eye

(or)

B) Explain the following

i) Electric current ii) Potential difference iii) Ohm's law iv) Electric power

Ans: i) Electric current

The net charge flows across any cross-section of a conductor in unit time is called electric current.

$$I = \frac{Q}{t}$$

SI unit of electric current is ampere

ii) Potential difference

The amount of work done in moving a unit positive charge from one point to another point in the field.

$$V = \frac{W}{Q}$$

SI unit of potential difference is 'volt'.

iii) Ohm's law

The potential difference across the ends of a resistor is directly proportional to the current through it, provided its temperature remains the same.

V = IR

SI unit of resistance is 'ohm'.

iv) Electric power

The rate of doing electric work is called electric power.

P = VI

SI unit of electric power is 'watt'.

16. A) Balance the following chemical equations

i) $NaCl + AgNO_3 \rightarrow AgCl + NaNO_3$

ii) $BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + HCl$

iii) $Pb(NO_3)_2 \rightarrow PbO + NO_2 + O_2$ (on heating)

iv) $Fe + H_2O \rightarrow Fe_3O_4 + H_2$

Ans: i) $NaCl + AgNO_3 \rightarrow AgCl + NaNO_3$

$NaCl + AgNO_3 \rightarrow AgCl + NaNO_3$

ii) $BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + HCl$

$BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + 2HCl$

iii) $Pb(NO_3)_2 \rightarrow PbO + NO_2 + O_2$ (on heating)

$2Pb(NO_3)_2 \rightarrow 2PbO + 4NO_2 + O_2$

iv) $Fe + H_2O \rightarrow Fe_3O_4 + H_2$

$3Fe + 4H_2O \rightarrow Fe_3O_4 + 4H_2$

(or)

B) Complete the following table.

No. of carbon in Hydro carbon	Alkane	Alkene	Alkyne
3	C_3H_8		
4		C_4H_8	
5			C_5H_8
6		C_6H_{12}	

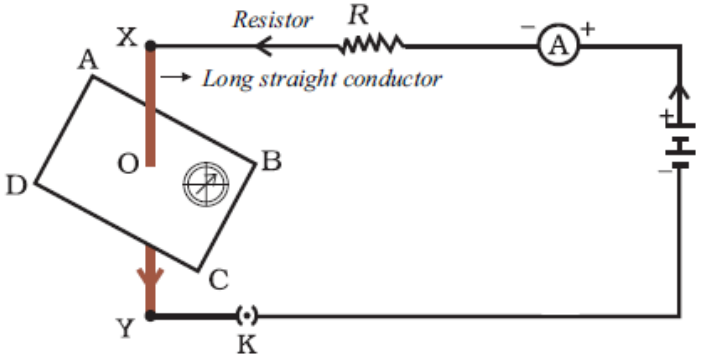
Ans:

No. of carbon in Hydro carbon	Alkane	Alkene	Alkyne
3	C_3H_8	**C_3H_6**	**C_3H_4**
4	**C_4H_{10}**	C_4H_8	**C_4H_6**
5	**C_5H_{12}**	**C_5H_{10}**	C_5H_8
6	**C_6H_{14}**	C_6H_{12}	**C_6H_{10}**

17. A) Explain the procedure to show that compass needle is deflected on passing an electric current through a metallic conductor (Oersted's experiment)

Ans: Aim: To show that compass needle is deflected on passing an electric current through a metallic conductor.

Required Materials: Thick copper wire, Magnetic compass, Card board, Resistor, Ammeter, Key.



Procedure: 1. Take a straight thick copper wire and place it between the points X and Y in electric circuit as shown in the figure.
2. The wire XY is kept perpendicular to the plane of paper.
3. Horizontally place a small compass near to this copper wire.
4. See the position of its needle.
5. Pass the current through the circuit by inserting the key into the plug.

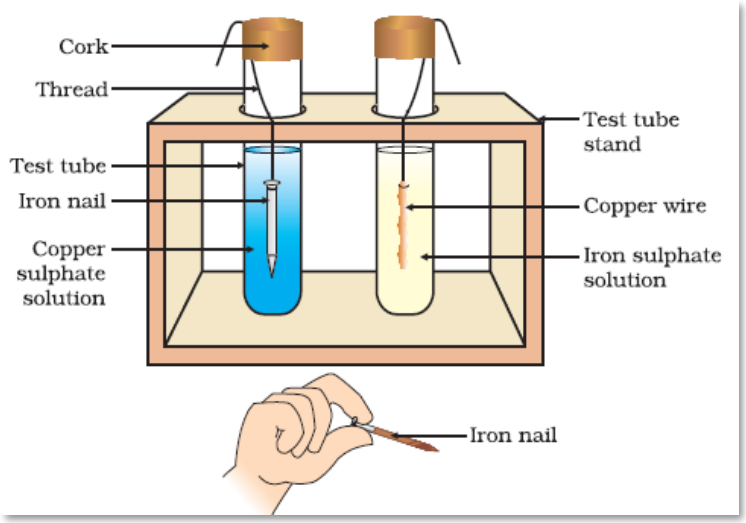
Observations: 1. We observe that the needle is deflected.
2. The electric current through the copper wire has produced a magnetic field around it.

(or)

B) Write an activity to show that high reactive metals displaces low reactive metals from their compounds.

Ans: Aim: Observe the reactive metals can displace less reactive metals from their compounds in solution.

Required Materials: Copper wire, Iron nail, Iron sulphate solution, Copper sulphate solution, Test tubes



Procedure: i) Take a clean wire of copper and an iron nail.

ii) Put the copper wire in a solution of iron sulphate and the iron nail in a solution of copper sulphate taken in test tubes figure.

iii) Record your observations after 20 minutes.

iv) The reaction occurs in the test in which iron nail is placed in a solution of copper sulphate.

v) The blue colour of copper sulpahte solution starts fading.

vi) This is a displacement reaction.

Observation: i) Reactive metals can displace less reactive metals from their compounds in solution.

ii) Iron metal displaces copper metal from its solution, iron is more reactive than copper

SSC PUBLIC EXAMINATIONS 2025-26

GENERAL SCIENCE - Paper – I

PHYSICAL SCIENCE (MODEL PAPER -2)

Time: 2 Hours **(English Version)** **Maximum Marks: 50**

Instructions:

6. Question paper consists of 4 sections and 17 Questions.
7. Internal Choice is there only for Q.No.12 in Section –III and for all the Questions in Section –IV.
8. In the duration of 2 hours, 15 minutes of time is allotted to read the Question paper.
9. All answers should be written in the answer booklet only.
10. Answer should be written neatly and legibly.

SECTION - I 8 x 1 = 8

Notes: 1. Answer **ALL** the questions.
2. Each question carries **1** mark.

1. Suggest one method to prevent corrosion.

Ans: Painting or Oiling or Greasing

2.Which one of the following is a non-metal?

A) Magnesium **B) Gold** **C) Sulphur** **D) Silver**

Ans: C) Sulphur

3. Write the formula of first member of the homologous series to which C_5H_{10} belongs.

Ans: C_2H_4

4. Find the Power of a Convex lens having a focal length of 50cm.

Ans: Focal length of a convex lens (f) = 50 cm = 0.5 m

Power of a convex lens (P) = $\frac{1}{f} = \frac{1}{0.5}$ = 2 D

5. The least distance of distinct vision for a young adult with normal vision is about _____

Ans: 25 cm

6. Draw the symbol of an ammeter.

Ans:

7. Which device is used to protect electric appliances from overloading in the household circuits?

Ans: Fuse

8. If two resistors of 6 Ω and 12 Ω were given to you, then how do you connect them to get 4 Ω as resultant resistance.

Ans: Parallel connection.

SECTION - II 3 x 2 = 6

Notes: 1. Answer **ALL** the questions.
2. Each question carries **2** marks.

9. What happens if curd or sour substances kept in brass or copper vessels?

Ans: Curd or sour substances contain acids. These acids react with metals like brass or copper to form salts, some of which may be poisonous. Consuming food from such vessels can lead to food poisoning and damage one's health.

10. Explain combustion with an example.

Ans: Carbon, in all its allotropic forms, burns in oxygen to give carbon dioxide along with the release of heat and light.

$C + O_2 \rightarrow CO_2$ + heat and light

11. Predict and Write about the world without lenses

Ans: In a world without lenses, vision correction, photography and scientific exploration would be impossible. Humans would rely on alternative tools to compensate for impaired vision and optical challenges.

SECTION - III **3 x 4 = 12**

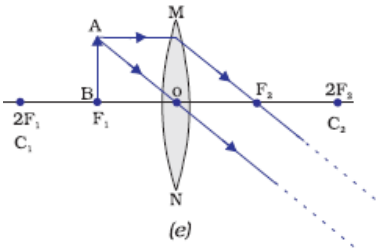
Notes: 1. Answer **ALL** the questions.
2. Each question carries **4** marks.

12. Draw any one of the following diagrams:

A) Draw the ray diagrams of image formed when the object is placed infront of a bi-convex lens in the following positions.

i) At F_2 **ii) Beyond $2F_2$**

Ans:



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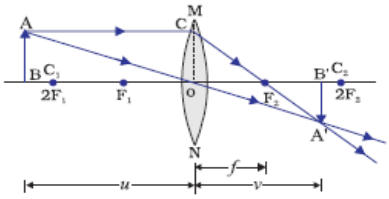
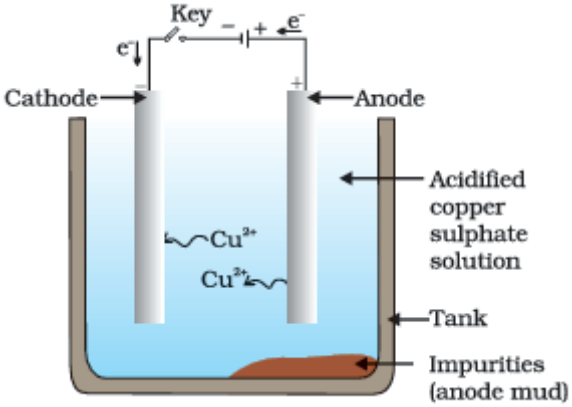


B) Draw a neat diagram to show the electrolytic refining of copper.

Ans:

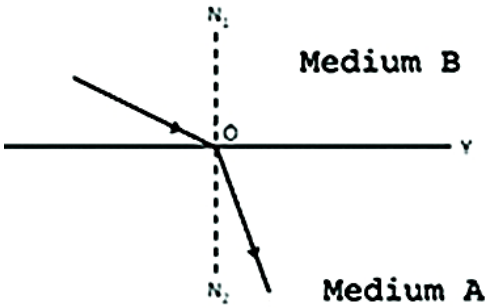


13. Write any four uses of metals.

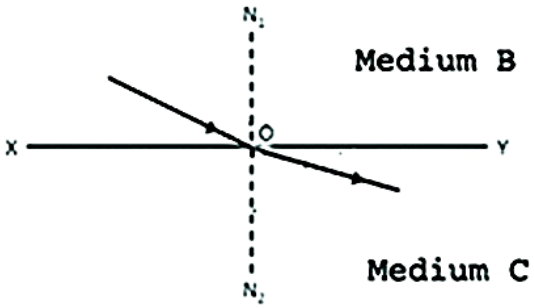
Ans: i) Jewellery and ornaments are made of metals
ii) Conduction materials are made of metals
iii) Utensils made of metals.
iv) Electrical wiring made of metals.

14. Following diagrams show refraction of light in two cases. Answer the questions given below based on the diagrams given

Case-1



Case-2



i) Which medium is optically rarer among A, B and C?
ii) Which medium is optically denser among A, B and C?
iii) Arrange A,B and C in ascending order with respect to speed of light.
iv) Arrange A,B and C in ascending order of their refractive indices.

Ans: i) Medium C
ii) Medium A
iii) A < B < C
iv) C < B < A

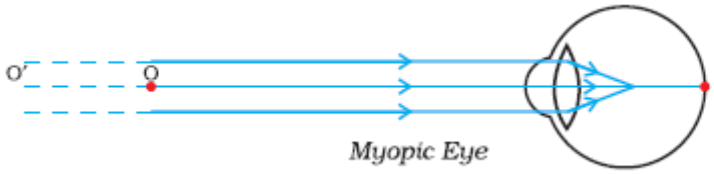
SECTION - IV 3 x 8 = 24

Notes: 1. Answer **ALL** the questions.
2. Each question carries **8** marks.
3. Each question has internal choice.

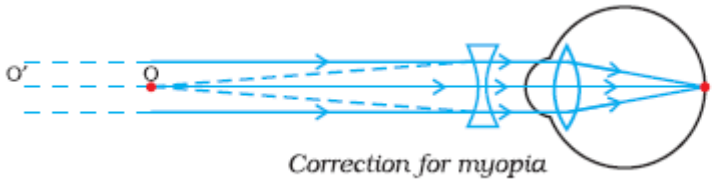
15. A) Teja is not able to see the letters clearly far from her. Identify the eye defect she has been suffering from and how can you rectify it? Explain.

Ans: **Myopia:**

i) Myopia is also known as nearsightedness.
ii) A person with myopia can see nearby objects clearly but cannot see distant objects distinctly.
iii) A person with this defect has the far point nearer than infinity. Such a person may see clearly upto a distance of a few metres.
iv) In a myopic eye, the image of a distant object is formed in front of the retina and not at the retina itself.
v) This defect may arise due to i) excessive curvature of the eye lens or ii) elongation of the eyeball.
vi) This defect can be corrected by using a concave lens of suitable power.
vii) A concave lens of suitable power will bring the image back on to the retina and thus the defect is corrected.



Myopic Eye



Correction for myopia

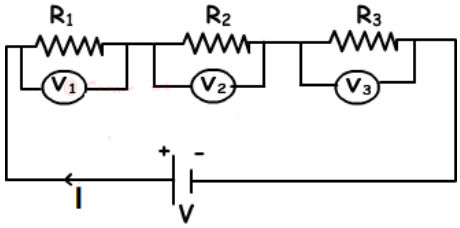
(or)

B) Derive the expression for the resultant resistance when three resistors are connected in series.

Ans: In series connection of resistors there is only one path for the flow of current in the circuit. .Hence, the current in the circuit is equal to I

On applying Ohm's law to each resistor

$V_1 = IR_1$
$V_2 = IR_2$;
$V_3 = IR_3$



Let R be the equivalent resistance of the combination of resistors in series.

Also $V = IR_s$
$V = V_1 + V_2 + V_3$
$IR_s = IR_1 + IR_2 + IR_3$
$IR_s = I(R_1 + R_2 + R_3)$
$R_s = R_1 + R_2 + R_3$

The resistance of the equivalent resistance in series combination is equal to the sum of their individual resistance.

16. A) State and explain four types of chemical reactions with an example each.

Ans: i) Combination reaction: A reaction in which a single product is formed from two or more reactants is known as a combination reaction.

Ex: Calcium oxide reacts vigorously with water to produce slaked lime.

$CaO + H_2O \rightarrow Ca(OH)_2$

ii) Decomposition reaction: A reaction in which a single substance decomposes to give two or more substances is known as decomposition reaction.

Ex: Decomposition of calcium carbonate to calcium oxide and carbon dioxide on heating.

$$CaCO_3 \xrightarrow{heat} CaO + CO_2$$

iii) Displacement reaction: The reaction in which an element has displaced or removed another element from the molecule is called displacement reaction.

Ex: Iron has displaced another element copper from copper sulphate solution.

$$Fe + CuSO_4 \rightarrow FeSO_4 + Cu$$

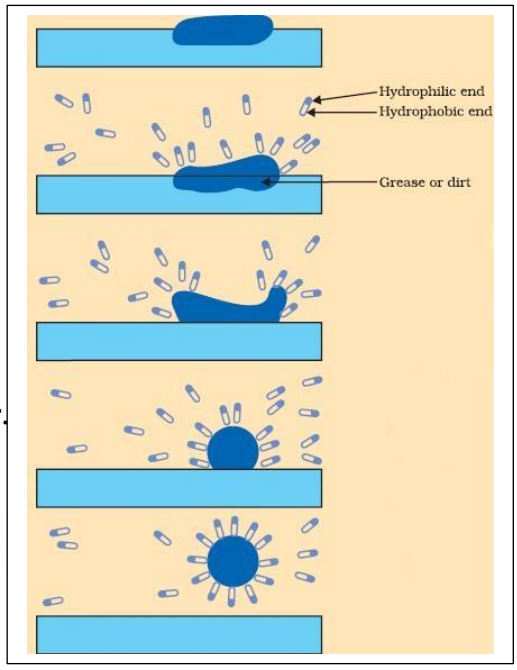
iv) Double displacement reaction: The reaction in which there is an exchange of ions between the reactants are called double displacement reactions.

Ex: Sodium sulphate and Barium chloride are reacting and exchange their ions.

$$Na_2SO_4 + BaCl_2 \rightarrow BaSO_4 + 2NaCl$$

(or)

B) Explain the cleaning action of soap.



Ans: i) Soaps are molecules in which the two ends have differing properties, one is hydrophilic, that is, it interacts with water,while the other end is hydrophobic, that is, it interacts with hydrocarbons.

ii) When soap is at the surface of water, the hydrophobic 'tail' of soap will not be soluble in water and the soap will align along the surface of water with the ionic end in water and the hydrocarbon 'tail' protruding out of water.

iii) Inside water, these molecules have a unique orientation that keeps the hydrocarbon portion out of the water.

iv) Thus,clusters of molecules in which the hydrophobic tails are in the interior of the cluster and the ionic ends are on the surface of the cluster.

v) This formation is called a micelle. Soap in the form of a micelle is able to clean, since the oily dirt will be collected in the centre of the micelle.

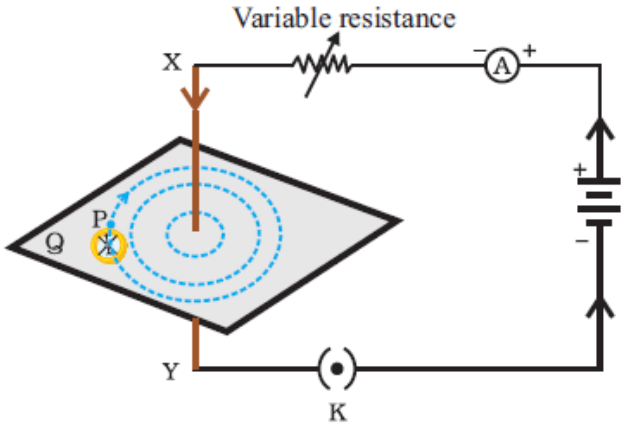
vi) The micelles stay in solution as a colloid and will not come together to precipitate because of ion-ion repulsion.

vii) Thus, the dirt suspended in the micelles is also easily rinsed away.

17. A) Describe an activity to draw the magnetic field produced around a current carrying straight conductor.

Ans: Aim: To study the magnetic field lines around a straight current carrying straight conductor.

Required materials: Battery, Variable resistance, Ammeter, Plug key, Thick copper wire, Cardboard, Iron filings.



Procedure: 1. As shown in the figure, connecting the circuit.

2. Insert the thick wire through the centre, normal to the plane of a rectangular cardboard. Take care that the cardboard is fixed and does not slide up or down.
3. Connect the copper wire vertically between the points X and Y, as shown in Fig. (a), in series with battery, a plug and key.
4. Sprinkle some iron filings uniformly on the cardboard.
5. Keep the rheostat at a fixed position and note the current through the ammeter. Close the key so that a current flows through the wire. Ensure that the copper wire placed between the points X and Y remains

vertically straight.

6. Gently tap the cardboard a few times.
7. We Observe that the iron filings align themselves showing a pattern of concentric circles around the copper wire
8. Place a compass at a point (say P) over a circle. The direction of the north pole of the compass needle would give the direction of the field lines produced by the electric current through the straight wire at point P.

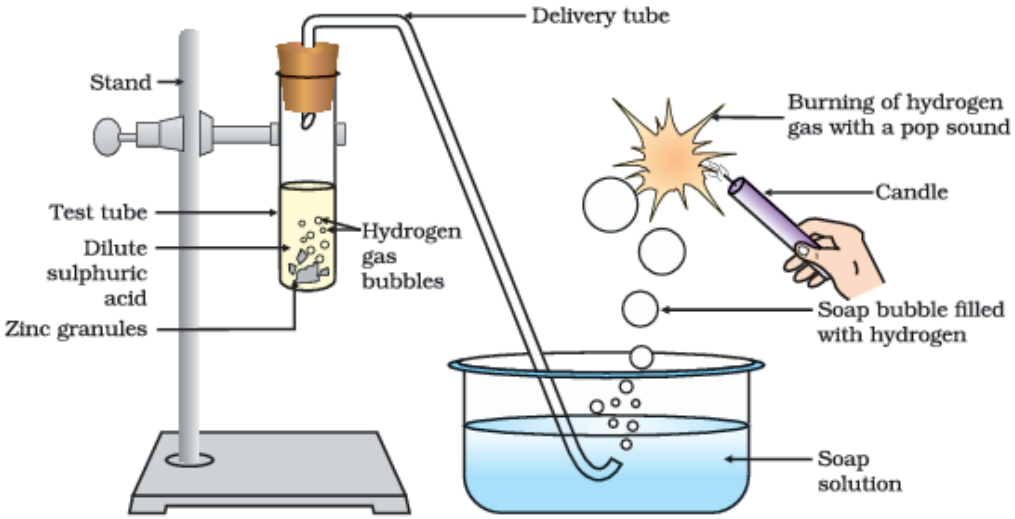
(or)

B) Write an activity to show that the reaction of acids with metals.

Aim: To show that acid produce hydrogen gas reacted with metals.

Required Materials: Test tube, Delivery tube, Glass trough, Candle, Soap water, dilute H_2SO_4, Zinc granules.

Procedure:



i) Set the apparatus as shown in figure.
ii) Take about 5 mL of dilute sulphuric acid in a test tube and add a few pieces of zinc granules to it.
iii) We observe a gas is evolved from the zinc granules
iv) Pass the gas being evolved through the soap solution.
v) We observe some bubbles formed in the soap solution.
vi) Take a burning candle near the gas filled bubble.
vii) The candle turns off with a pop sound.
viii) The pop sound indicates that the gas evolved in H_2
ix) Repeat this experiment with remaining acids.

Conclusion/Observation: We conclude that hydrogen gas is produced when acid reacts with metals.

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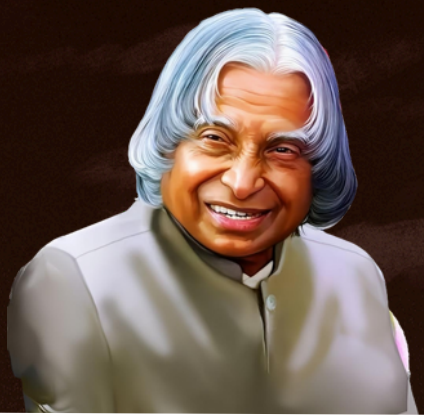

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