

నేను సాధిస్తా

SSC X CLASS PS లో 50 కి
50మార్కులు.

అనుకుంటున్న విద్యార్థులకు
ఈ మెటీరియల్ చదువుతే
చాలు. దాదాపు మీ కోరిక
నెరవేరవచ్చు. ఈ మెటీరియల్
లోని అన్ని ప్రశ్నలు బాగా
చదవాలి. C, D గ్రేడ్ పిల్లలు 5
STAR ప్రశ్నలు చదవాలి.

TOP 20 ONE MARK QUESTIONS WITH ANSWERS

Chemical Equations and Reactions

***** 1. Why do we apply paint on iron articles?

Ans : 1. It slows down the oxidation process.

2. It prevents from the Corrosion.

***** 2. Predict, exhalation air is hotter than inhalation air in respiration ?

Ans : 1. Energy is released in respiration process.

2. That energy was absorbed by exhalation air.

3. So the exhalation air is hotter than inhalation air.

***** 3. Why, keeping food in air tight containers?

Ans : 1. It slows down the oxidation process.

2. It prevents from the Rancidity.

***** 4. Oil and fat containing food items (chips packets) are flushed with nitrogen. Why?

Ans : 1. It slows down the oxidation process.

2. It prevents from the Rancidity.

5. What happened when iron nail is exposed in air or atmosphere?

Ans : Iron nails were rusted.

6. Suggest one method to prevent corrosion.

Ans: Painting or Greasing or Oiling

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

Ans: $2 \text{Mg} + \text{O}_2 \longrightarrow 2 \text{MgO}$

8. State the law of conservation of mass ?

Ans : Mass can neither be created nor be destroyed in a chemical reaction. (or)

Mass of the reactants = Mass of the products

9. Name two effects of oxidation in daily life.

Ans: 1. Corrosion 2. Rancidity

10. Why should a magnesium ribbon be cleaned before burning in air?

- Ans : 1. Magnesium is high reactive metal, so it forms magnesium oxide layer on its surface.
2. This layer stops the burning of magnesium.
3. Cleaning process allows the magnesium to burn completely and brightly in air.

11. Hydrogen reacts with Chlorine to give Hydrogen Chloride. Rewrite the above reaction as Chemical equation.

Ans : $\text{H}_2 + \text{Cl}_2 \longrightarrow 2 \text{HCl}$.

12. Name one observation that helps determine if a chemical reaction has occurred.

Ans : change in state (or) change in colour (or) evolution of a gas (or) change in temperature.

13. Why is photosynthesis considered an endothermic reaction?

Ans : Because it absorbs energy from the Sun .

14. What is Oxidation and Reduction .

- Ans : 1 Adding of O_2 to the substance or removing of Hydrogen from the substance is called oxidation.
2. Adding of H_2 to the substance or removing of Oxygen from the substance is called reduction.

15. Write the chemical formula of marble ?

Ans : CaCO_3

16. What is the common name of calcium oxide and calcium hydroxide ?

Ans : The common name of calcium oxide is quicklime and calcium hydroxide is lime water / slaked lime.

17. $\text{N}_2 + 3 \text{H}_2 \longrightarrow 2 \text{NH}_3$, Name the type of reaction.

Ans : Combination Reaction

18. What type of reaction takes place during respiration?

Ans: Exothermic reaction .

19. What type of reaction occurs when an iron nail is placed in copper sulphate solution?

Ans: A displacement reaction .

20. What type of reaction occurs in the digestion of food in our body?

Ans: Decomposition reaction.

Acids , Bases and Salts

***** 1.What is the common name of the compound CaOCl_2 ?

Ans: Bleaching powder

***** 2.What is a neutralization reaction? Give an example?

Ans : When acid react with bases gives salt and water is called neutralization. (Or)

Acid + Base \longrightarrow Salt + water.

Ex : $\text{HCl} + \text{NaOH} \longrightarrow \text{NaCl} + \text{H}_2\text{O}$

3.What is pH scale ? Write it range?

Ans : A scale for measuring hydrogen ion concentration is called pH scale.

pH range is 0 - 14. (Note : pH = 7 for neutral, pH < 7 for acids and pH > 7 for bases)

***** 4.The reaction of Zinc granules with dilute sulphuric acid which gas is liberated .

Ans: Hydrogen gas

***** 5._____ gas evolves, when metal carbonate or metal hydrogen carbonate react with acids .

Ans: Carbon dioxide or CO_2

6.Bases which are soluble in water are called _____

Ans : Alkali

***** 7. Which is the strong alkaline solution among the solutions given in the table?

| Solution | A | B | C | D | E |
|----------|---|---|---|----|---|
| pH Value | 2 | 4 | 7 | 13 | 8 |

Ans : Solution D

***** 8.Which is the strong acidic solution among the solutions given in the table?

| Solution | A | B | C | D | E |
|----------|---|---|---|----|---|
| pH Value | 1 | 4 | 7 | 13 | 9 |

Ans : Solution A

9. Observe the table and answer the following questions.

| Substance | Blue litmus | Red litmus |
|-----------|--------------------------|--------------------------|
| X | Blue colour turns to red | Remains same |
| Y | Remains same | Remains same |
| Z | Remains same | Red colour turns to blue |

Which is neutral?

Which is acid ?

Which is base ?

Ans : Y

Ans : X

Ans : Z

10. Observe the table and answer the following questions.

| Sample Solution | P | Q | R |
|-----------------------------|-----|--------|--------|
| Reaction with Methyl Orange | Red | Yellow | Orange |

Which sample solution is acidic?

Ans : P

Which sample solution is basic ?

Ans : Q

Which sample solution is neutral?

Ans : R

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

Ans: Yellow

***** 11. Observe the table and answer the following questions.

| Substance | A | B | C | D | E |
|-----------|--------------------------|------------------|--|------------------|---|
| Formula | Na_2CO_3 | NaHCO_3 | $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$ | CaOCl_2 | $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ |

Which substance make the water from free of gems ?

Ans : D

Which is used for doctors supporting fracture bones in their right position?

Ans : C

Which is used as antacid and antiseptic? Ans : B

12. Observe the table and answer the following questions.

| Solution | Gastric juice | Lemon juice | Pure water | Milk of Magnesia | Sodium Hydroxide |
|----------|---------------|-------------|------------|------------------|------------------|
| pH Value | 1 | 2 | 7 | 10 | 14 |

Which solution is used as antacid ?

Ans : Milk of Magnesia

13. Give example for an acid. (or) Give example for strong acid.

Ans: Hydrochloric acid (or) HCl

14. Give example for a base (or) Give example for strong base.

Ans: Sodium hydroxide (or) NaOH

15. Give example for salt

Ans: Sodium chloride (or) NaCl

16. Name the substance it forms bleaching powder when it react with Chlorine?

Ans : $\text{Ca}(\text{OH})_2$ or Slaked lime

17. What happens when Plaster of Paris is mixed with water?

Ans : It absorb water and form hardest substance gypsum.

18. What happens when carbon dioxide is passed through lime water?

Ans: A white precipitate of calcium carbonate is formed.

19. Write the formulas of gypsum and plaster of Paris ?

Ans : Gypsum - $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$

Plaster of Paris - $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$

20. How many molecules of water of crystallisation are there in Washing soda crystals and Blue vitriol ?

Ans : 10 molecules of water of crystallisation are there in Washing Soda and

5 molecules of water of crystallisation are there in Blue Vitriol.

Metals and Non Metals

***** 1. What are amphoteric oxides ?

Ans : The oxides which have both acidic and basic nature are called amphoteric oxides.

Ex : Aluminium oxide and zinc oxide

***** 2. What type oxides form when non metals react with oxygen ?

Ans : 1. Non - metal oxides are formed when non - metal react with oxygen.

2. Non metal oxides have acidic nature. But CO has neutral nature.

(OR)

What type oxides form when metals react with oxygen ?

Ans : 1. Metal oxides are formed when metal react with oxygen.

2. Metal oxides have basic nature

3. What is Malleability ?

Ans : 1. Making of thin sheets is called Malleability.

2. Metals have malleable property.

4. What is Ductility?

Ans : 1. Drawn into wires is called Ductility.

2. Metals have ductile property.

5. Which metal does not corrode easily?

(OR)

Name two metals which are found in nature in the free state.

Ans : Gold, Platinum

***** 6. Write any two physical properties of metals ?

Ans : Malleability and Ductility.

7. Name a non-metal which is lustrous.

Ans: Iodine

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

Ans: Electrolysis.

9. Give an examples for a non metals ?

Ans : Carbon, Sulphur, Phosphorus, Nitrogen, Chlorine, Fluorine, Iodine, Hydrogen and Oxygen.

10. What chemical process is used for obtaining a metal from its oxide?

Ans: Reduction

11. Give one example of amphoteric oxides?

Ans: Aluminium oxide and zinc oxide .

12. Give an example of a metal which can be easily cut with a knife.

Ans: Lithium , Sodium and Potassium

(Hint : In Knife word first letter K , K is the symbol of Potassium , K after L in alphabets , So Lithium)

13. Give an example of a metal which is the best conductor of heat.

Ans: Silver and copper

14. Give an example of a metal which is a poor conductor of heat.

Ans : Lead and Mercury

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

A) NaCl solution and copper metal

B) MgCl₂ solution and aluminium metal

C) FeSO₄ solution and silver metal

D) AgNO₃ solution and copper metal.

Ans: D) AgNO₃ solution and copper metal.

16. Which of the following methods is suitable for preventing an iron frying pan from rusting?

A) Applying grease

B) Applying paint.

C) Applying a coating of zinc.

D) All of the above.

Ans: D) All of the above.

17. An element reacts with oxygen to give a compound with a high melting point. This compound is also soluble in water. The element is likely to be

A) calcium.

B) carbon.

C) silicon.

D) iron.

Ans: A) calcium

18. 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.

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

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

20. What happens to silver articles when exposed to moist air?

Ans : They form black coloured Silver Sulphide . So they get tarnished.

(OR)

Why potassium and sodium are immersed in kerosene?

Ans : Potassium and Sodium are highly reactive metals. So they can react vigorously with air and moisture and cause explosions.

Note : 1. More ductile metal and malleable metal is Gold . But pure gold is not used for making jewellery, because it is soft in nature.

2. Metal which is liquid at room temperature is Mercury.

3. Non metal which is liquid at room temperature is Bromine.

4. Metals which are float on the water are Calcium and Magnesium.

5. Bronz is an alloy of Copper and Tin.

6. Brass is an alloy of Copper and Zinc.

7. Carbon percentage in steel is 0.05 %.

8. Solder is an alloy of Lead and Tin.

9. Aquarigia : It is a mixture of Conc. HCl and Conc. HNO₃ in the ratio of 3:1 . It is also called Royal Water .

10. Alloy : It is a homogeneous mixture of two or more metals or one metal and non metal.

Carbon and its compounds

***** 1. Write any one industrial application of hydrogenation ?

Ans : Hydrogenation is used to prepare vegetable ghee from vegetable oil.

2. Write any one use of carbon compounds?

Ans : Carbon compounds are used as fuels.

***** 3. Write any one use of ethanol/Alcohol ?

Ans : 1. It is used as good solvent.

2. It is used in preparing of tonics , tincture and cough syrups.

***** 4. Write any one use of ethanoic acid ?

Ans : 1. It is used in preparing of vinegar.

2. It is used in preparing of esters.

5. Write any one use of vinegar?

Ans : It is used as preservative in pickles.

6. Write any one use of saponification?

Ans : It is used in preparing of soaps.

7. Write the formula of first member of the homologous series to which C₅H₁₀ belongs.

Ans : C₂H₄.

8. Which hydrocarbons can participate in substitution reactions?

Ans : Saturated Hydrocarbons (must obey formula C_n H_{2n+2}) Ex: CH₄, C₂H₆, C₃H₈, C₄H₁₀.

9. Which hydrocarbons can participate in addition reactions?

Ans : Un - Saturated Hydrocarbons (must obey formula C_nH_{2n} & C_nH_{2n-2}) Ex: C₂H₄, C₂H₂, C₃H₆ et.

10. Write the formulas, prefix and suffix names of different functional groups?

| Functional Group | Formula | Prefix | Suffix |
|------------------|---------|----------|----------|
| Alcohol | - OH | Hydroxy | Ol |
| Aldehyde | - CHO | Pharmyll | Al |
| Ketone | - CO | Oxo | One |
| Carboxylic acid | - COOH | Carboxy | Oic acid |

11. What is vinegar ?

Ans : 5% – 8% of acetic acid in water is called vinegar .

12. What is the common name of ethanol and ethanoic acid ?

Ans : Common name of ethanol is alcohol and ethanoic acid is acetic acid.

13. Which gas releases when alcohols react with sodium?

Ans : Hydrogen

14. How many covalent bonds present in ethane (C_2H_6) and Ethene (C_2H_4)?

Ans : In Ethane is 7 and in Ethene is 6

15. Write the general formulas of Alkanes, Alkenes and Alkynes ?

Ans : General formula of Alkane is $C_n H_{2n+2}$, Alkene is $C_n H_{2n}$ and Alkynes is $C_n H_{2n-2}$.

16. What is esterification?

Ans : The reaction between acids and alcohols forms esters. This reaction is called esterification.

17. Which functional groups present in Butanal, Butanol and Butanone?

Ans : The functional group present in Butanal is Aldehyde , Butanol is Alcohol and Butanone is Ketone.

18. What are the compounds contain only hydrogen and carbon ?

Ans : Hydrocarbons

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

Ans: Addition reaction.

20. Why is the conversion of ethanol to ethanoic acid an oxidation reaction?

Ans : Because ethanol gain oxygen .

Note : 1. What is Saponification?

Ans : The reaction of Esters and Sodium Hydroxide gives Sodium salts of carboxylic acid (Soaps) and alcohol. This reaction is called saponification.

2. Is Conc . H_2SO_4 act as dehydrating agent ?

Ans : Yes, Conc. H_2SO_4 act as dehydrating agent, because it removes water from the substance.

3. What Catalyst is used in hydrogenation of vegetables oils ? Ans : Nickel .

4. What type of reaction occurs when chlorine is added to hydrocarbons in sunlight?

Ans : Substitution Reaction.

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REFLECTION AND REFRACTION OF LIGHT

1. The radius of curvature of a spherical mirror is given as 20 cm then Determine its focal length.

Ans : Radius of curvature $R = 20$ cm. Focal length $f = R/2 = 20 / 2 = 10$ cm

2. The focal length of a spherical mirror is 16 cm. then find its radius of curvature ?

Ans : Radius of curvature. $R = 2f = 2 \times 16 = 32$ cm

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

Ans : Focal length $f = 50$ cm. Power of Lens $P = 100/f = 100/50 = 2$ D

4. Find the focal length of a concave lens of -2.5 D.

Ans : Power $P = -2.5$ D. Focal length $f = 1/P = 1/-2.5$ D = $-10/25 = -0.4$ m .

5. A doctor has prescribed a corrective lens of power $+1.5$ D. Find the focal length of the lens.

Ans : Power $P = 1.5$ D. Focal length $f = 1/P = 1/1.5$ D = $10/15 = 2/3 = 0.66$ m.

6. What is the net power of two lenses of power $+2.0$ D and $+0.25$ D placed in contact?

Ans : Net Power $P = P_1 + P_2 = 2 + 0.25 = 2.25$ D

7. What is the net power of three lenses of power $+2.0$ D, -0.5 D and $+0.25$ D placed in contact?

Ans : Net Power $P = P_1 + P_2 + P_3 = 2 + (-0.5) + 0.25 = 2 - 0.5 + 0.25 = 1.75$ D.

8. A concave mirror produces a magnification of $+3$. What does this indicate?

Ans : The image is virtual , erected and magnified.

9. A lens has a magnification of -0.5 . What type of image is formed?

Ans: Real and inverted.

10. The magnification of a mirror is -1 . What is the nature of the image?

Answer: Real, inverted, and same size as object.

11. A convex lens produces a magnification of $+0.5$. What type of image is formed?

Ans: Virtual and erect.

12. A concave mirror produces a magnification of -1.5 . What does this indicate?

Ans: The image is real, inverted, and magnified.

13. A lens has a magnification of $+0.25$. What type of image is formed?

Answer: Virtual, erect, and diminished.

14. The magnification of a convex mirror is always:

Answer: Positive and less than 1.

15. If the magnification of a mirror is +1, what type of mirror is it?

Answer: Plane mirror.

16. A lens has a power of +3.0 D. What type of lens is it?

Ans: Convex lens or Converging lens.

17. The power of a lens is - 3.0 D. What is the nature of the lens?

Ans: Diverging lens or Concave lens .

18. The refractive index of diamond is 2.42. What is the meaning of this statement?

Ans : Speed of light is $1/2.42$ times in diamond than air. (or) Light travels 2.42 times slower in diamond than in air or vacuume. (or) The ratio of speed of light in air to diamond is 2.42 .

19. Refractive index of Benzene is 1.5 , find the speed of light in Benzene?

Ans : Refractive Index $n = 1.5$, Speed of Light $C = 3 \times 10^8$ m/s.

Speed of light in Benzene $V = C/n = 3 \times 10^8 / 2 = 1.5 \times 10^8$ m/s.

20. The refractive index of glass with respect to water is $8/9$ then find the value of refractive index of water with respect to glass ?

Ans : Refractive index of water with respect to glass = $1 / \text{Refractive index of glass with respect to water}$
 $= 1 / 8/9 = 9/8.$

Note : Which one of the following materials cannot be used to make a lens?

(a) Water (b) Glass (c) Plastic (d) Clay

Ans : d (Clay)

Human Eye and Colourful World

***** 1. The least distance of distinct vision for a young adult with normal vision is about

- a) 25 m b) 2.5 cm c) 25 cm d) 2.5 m

Ans : c is

***** 2. The human eye forms the image of an object at its

- a) cornea b) iris c) pupil d) retina

Ans : d

***** 3. The changes in focal length of an eye lens is caused by the action of the

- a) pupil b) retina c) ciliary muscles d) iris

Ans : c

4. The human eye can focus on objects at different distances by adjusting the focal length of the eye lens. This is due to

- a) presbyopia. b) accommodation. c) near-sightedness. d) far-sightedness.

Ans : b

(or)

What is accommodation of eye lens ?

Ans : The ability of eye lens to change its focal length is called accommodation of eye lens.

5. What is dispersion of light?

Ans : The splitting of white light into seven different colours is called dispersion of light.

6. What is Cataract?

Ans : The defect in which eye lens becomes Milky and Cloudy is called Cataract.

7. What is Tyndall effect ?

Ans : the scattering of beam of light by the colloidal particles is called Tyndall effect.

8. The far point and near point of a normal eye is

Ans : Infinity and 25 cm.

9. Myopia is also known as: Ans: Nearsightedness.

10. Hypermetropia is also known as:

Ans: Farsightedness.

11. How is Myopia or near sightedness corrected?

Ans: By using Concave lens

12. How is Hypermetropia or long sightedness corrected?

Ans: By using Convex lens .

13. What type of image formed by the eye lens? and which type of lens present in our eyes?

Ans: Real, inverted and diminished image. Eye lens is biconvex lens.

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

Ans: dispersion

15. A rainbow is formed due to

Ans: dispersion, refraction and total internal reflection.

16. Twinkling of stars due to

Ans: Atmospheric refraction

17. The blue colour of sky due to

Ans: Scattering of light

18. Ashok can drive the bus but can't read the newspaper. What type of eye defect is he?

Ans : Hypermetropia.

19. Ajay can draw the diagram sit on the first bench, but can't draw sit on last bench.

What type of eye defect is he?

Ans : Myopia

20. The defect of eye find it difficult to see nearby objects comfortably and distinctly without corrective eye-glasses is called.....

Ans : Presbyopia

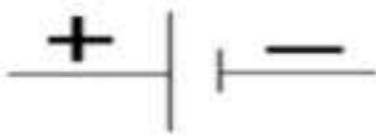
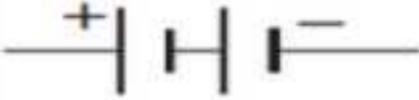
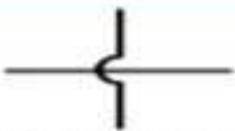
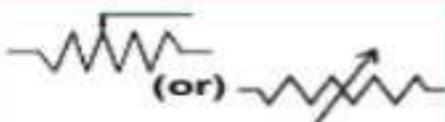
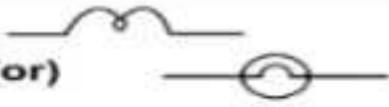
Note : * The maximum and minimum focal length of the eye lens is 2.5 cm and 2.27 cm

* The distance between retina and eye lens is 2.5 cm.

* Pupil act as Variable aperture . * Iris is the colourful part in our eye.

ELECTRICITY

***** 1. Symbols of electrical components.

| Electric Symbols (or circuit symbols) | | CREST Circuit Resistor Engineering Science Technology |
|--|--|--|
|  Cell |  Battery of two cells |  Connecting wire |
|  A wire joint |  Wires crossing without contact |  Fixed resistance (or Resistor) |
|  Variable resistance (or Rheostat) |  Ammeter |  Voltmeter |
|  (or)  An open switch (An open plug key) |  (or)  A closed switch (A closed plug key) |  (or)  Electric bulb (Electric lamp) |
|  Galvanometer | | |

***** 2.1 KWH how many joules?

Ans : 3.6×10^6 J

***** 3. What is the SI unit of resistivity or specific resistance?

Ans: ohm-metre (or) Ω m

4. What is the SI unit of electric power?

Ans: Watt (or) W

5. What is commercial unit of electrical energy?

Ans: Kilo Watt Hour (or) KWH

***** 6. Name a device that helps to measure the potential difference across the ends of a conductor?

Ans : Volt metre.

7. What is the SI unit of resistance of a conductor connected in an electric circuit?

Ans: ohm (or) Ω .

8. What is the SI unit of electric charge?

Ans: coulomb (or) C

9. What is the SI unit of electric current ?

Ans: ampere (or) A

10. What is the SI unit of potential difference?

Ans: volt (or) V

11. 6 Ω , 12 Ω resistors are connected in series and parallel .What will be the resultant resistance?

Ans: Resultant Resistance in series $R_s = R_1 + R_2 = 6 + 12 = 18 \Omega$.

Resultant Resistance in parallel $R_p = \frac{R_1 \times R_2}{R_1 + R_2} = \frac{6 \times 12}{6 + 12} = \frac{72}{18} = 4 \Omega$.

12. How is an ammeter and voltmeter connected in a circuit ?

Ans : Ammeter connected in series in a circuit and Voltmeter connected in a parallel in a circuit.

13. How many electrons are contained in one coulomb of charge?

Ans: 6.25×10^{18} electrons.

14. On which method we get the lowest and highest total resistance with four coils of 10 Ω , 8 Ω , 6 Ω , 4 Ω ?

Ans : The lowest resistance is obtained by connecting them in parallel.

The highest resistance is obtained by connecting them in series.

15. 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.

16. On what factors does the resistance of a conductor depend?

Ans: Length, Area of cross-section, nature of the material and Temperature.

17. On what factors does the resistivity of a conductor depend?

Ans: Nature of the material and Temperature.

18. Formulas or Mathematical Expressions.

| | | | |
|-------------------------|-----------|----------------------|---------------------------------|
| 1. Ohm's Law | $V = RI$ | 4. Electric Power | $P = VI$ or I^2R or V^2 / R |
| 2. Electric Current | $I = Q/t$ | 5. Electrocal Energy | $E = P \times t$ |
| 3. Potential difference | $V = W/Q$ | 6. Resistivity | $\rho = RA / l$ |

19. What is the function of a fuse in an electric circuit?

Ans : 1. Fuse has low melting point, so it is melt are the time of overloading.

2. Fuse protect electric appliances from overloading in the household circuits .

(or) which device is used to protect electric appliances from overloading in the household circuits ?

Ans : Fuse

20. How much energy is given to each coulomb of charge passing through a 6V battery?

Ans : Energy $W = VQ$

$$W = 6 \times 1 = 6 \text{ J.}$$

2 MARKS QUESTIONS WITH ANSWERS

Carbon and its compounds

***** 1. A hydrocarbon is combination of four carbons and ten hydrogens.

i) Write the formula of this hydrocarbon ii) Write its name.

Ans : i) C_4H_{10}

ii) Butane

2. General formula of alkanes is C_nH_{2n+2} . Write the first two alkanes ?

Ans : Methane : CH_4

Ethane : C_2H_6

3. Which of the following hydrocarbons undergo addition reactions.

C_2H_6 , C_3H_8 , C_3H_6 , C_2H_2 and CH_4

Ans: C_3H_6 , C_2H_2

***** 4. Identify the alkanes, alkenes and alkynes

C_2H_6 , C_3H_8 , C_3H_6 , C_2H_2 , C_5H_{10} , C_3H_4 and CH_4

Ans : Alkanes : C_2H_6 , C_3H_8 , CH_4

Alkenes : C_3H_6 , C_5H_{10} and Alkynes : C_2H_2 , C_3H_4 .

(or)

Collect the saturated and unsaturated hydrocarbons in the following

C_2H_6 , C_3H_8 , C_3H_6 , C_2H_2 , C_4H_6 , C_5H_{10} and CH_4

Ans: Saturated hydrocarbons : C_2H_6 , C_3H_8 , CH_4

Unsaturated hydrocarbons : C_3H_6 , C_2H_2 , C_4H_6 , C_5H_{10}

***** 5. Complete the following table .

| | | | | |
|--------------|---------|----------|---------|-------------|
| Hydro Carbon | Methane | | Propane | |
| Formula | | C_2H_6 | | C_4H_{10} |

Ans :

| | | | | |
|--------------|---------|----------|----------|-------------|
| Hydro Carbon | Methane | Ethane | Propane | Butane |
| Formula | CH_4 | C_2H_6 | C_3H_8 | C_4H_{10} |

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

Ans: 1. Catenation. 2. Tetravalency.

8. Explain combustion with an example.

Ans: Carbon compounds react with oxygen gives carbon dioxide, heat and light. This reaction is called combustion.

Ex: $\text{CH}_4 + 2 \text{O}_2 \rightarrow \text{CO}_2 + 2 \text{H}_2\text{O} + \text{heat and light}$.

9. Explain esterification reaction with an example.

Ans: The reaction between acids and alcohols forms esters. This reaction is called esterification.

Ex: $\text{C}_2\text{H}_5\text{OH} + \text{CH}_3\text{COOH} \xrightarrow{\text{Conc. H}_2\text{SO}_4} \text{CH}_3\text{COOC}_2\text{H}_5$ (Ethyl ethanoate) + H_2O

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

Ans: 1. The series carbon compounds in which two successive carbon compounds differ by CH_2 unit is called homologous series.

2. In this series compounds have same functional groups and same General formula.

Ex: CH_3OH , $\text{C}_2\text{H}_5\text{OH}$, $\text{C}_3\text{H}_7\text{OH}$

11. Explain oxidation reactions of carbon compounds with an example.

Ans: 1. Adding of oxygen to the substance is called Oxidation.

2. Alcohols undergo oxidation and give carboxylic acids in presence of alkaline KMnO_4 or acidified $\text{K}_2\text{Cr}_2\text{O}_7$.

Ex: $\text{C}_2\text{H}_5\text{OH} \xrightarrow{\text{alkaline KMnO}_4 + \text{Heat}} \text{CH}_3\text{CHO} \xrightarrow{\text{alkaline KMnO}_4 + \text{Heat}} \text{CH}_3\text{COOH}$.

12. Write two allotropes of carbon.

Ans: 1. Diamond. 2. Graphite. 3. C_{60} 4. Nanotubes.

13. Explain isomerism with an example?

Ans: The phenomenon in which compound have same molecular formula but different structural formulas are called isomerism.

Ex: $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_3$. (n-butane). $\text{CH}_3 - \overset{\text{CH}_3}{\underset{\uparrow}{\text{C}}} - \text{CH}_3$. (Iso butane)

14. Give one example of saturated and unsaturated compounds .

Ans: Saturated hydro carbon: CH₄

Unsaturated hydro carbon: C₂H₄

Reflection and Refraction of Light

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

Ans : 1.It always forms Virtual image

2. It forms erected image.
3. It forms small sized image
4. It has wider field view.

Due to above reasons convex mirror used as rear - view mirror.

***** 2.A ray of light travelling in air enters obliquely into water. Does the light ray bend towards the normal or away from the normal? Why?

Ans : 1. The light ray bend towards the normal.

- 2.Because air is rarer medium and water is denser medium.
- 3.So the speed of light decreases when it enters from air to water.

***** 3.A ray passing through the centre of curvature of a concave mirror, after reflection, is reflected back along the same path.Why?

Ans : 1. A ray passing through the centre of curvature after

reflection it reflected back along the same path.

- 2.Because the ray hits the concave mirror at 90° angle.
- 3.So the angle of incidence and angle of reflection is zero.
- 4.Hence the reflected ray over lap on the incidence ray and passes through the centre of curvature.

***** 4. What happens to a ray of light when it travels from one medium to another medium having equal refractive indices?

Ans : 1. No Refraction takes place .

2. Because two mediums have same refractive indices.
3. So there is no change in speed of light.
4. Hence the light ray travel in same path without deviation.

5. The magnification produced by plane mirror is +1. What does this mean?

Ans : 1. Magnification is + 1 means , the size of the image equal to the size of the object .

2. Positive sign indicates image is erect and virtual.

6. Write any two applications of lenses.

Ans : Lenses are used in

1. Making of Spectacles for vision correction
2. Making of telescopes
3. Making of microscopes
4. Making of cameras.

7. Predict and Write about the world without lenses.

Ans : 1. Vision correction is not possible.

2. Telescopes aren't exist.
3. Microscopes aren't exist.
4. Cameras aren't exist.
5. Many scientific discoveries aren't possible.

8. 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 : 1. Every part of lens forms image.

2. So the lens forms complete image with uncovered part.
3. But intensity of the image decreased , by blocking of some light rays.

9.If you want to see an enlarged image of your face, which type of mirror will you see? Where will you place your face?

Ans : Concave Mirror. The face should be placed between pole and focus of the mirror.

10.Write any two applications of mirrors.

Ans : 1. Concave Mirror is used as Shaving Mirror and Dentist Mirror.

2. Concave Mirror uses in Torches, Search lights , Vehicles head lights and Solar furnaces.

3. Convex Mirror used as rear - view mirror.

4. Convex Mirror used for security purpose.

5. Plane mirror is used in construction of periscope.

6.Plane mirror is used in construction of kaleidoscope.

Electricity

***** 1.Why is the series arrangement not used for domestic circuits?

Ans: 1. In series arrangement if one device is failed to work , the circuit will be broken.

2. So remaining devices are not work.

3. Because there is a single path for the flow of current.

4. So series arrangement not used for domestic circuits.

(OR)

Why should we connect electric appliances in parallel in a household circuit? What happens if they are connected in series?

Ans : 1. We connect electric appliances in parallel, if one device is failed to work, the circuit is not broken.

2. So remaining devices are work.

3. Because there are branches of paths for the flow of current.

4. If they are connected in series, if one device is failed to work the circuit will be broken.

5. So remaining devices are not work.

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

- Ans :
1. Because they have low resistivity.
 2. Resistivity value decreases means conductivity increases.
 3. So they act as good conductors of electricity.
 4. Hence Copper and Aluminium wires are used in making of electric wires.

3. Why are coils of electric toasters and electric irons made of an alloy rather than a pure metal?

- Ans :
1. Alloys have high resistivity value than pure metals.
 2. So they produce high amount of heat when current pass through it.
 3. Alloys do not oxidised easily.

Due to above reasons alloys are used in making of coils of electric toasters and electric irons.

4. Why is the tungsten used almost exclusively for filament of electric lamps?

- Ans:
1. It has a high resistivity .
 2. It has high melting point.

Due to above reasons tungsten is used as filament in electric lamps.

5. What happens to the resistivity of a conductor if its length is doubled?

- Ans :
1. Resistivity depends on the nature of conductor and Temperature.
 2. It doesn't depend on length of the conductor.
 3. So there is no change in the resistivity, If the length is doubled.

6. What happens to the current in a series connection of resistors ?

- Ans :
1. In series connection of resistors , there is a single path for the flow of current.
 2. So the current is constant in a series connection of resistors .

7. What happens to the potential difference in a series connection of resistors ?

- Ans :
1. The potential difference is divided in series connection of resistors.
 2. It is equal to the sum of the potential differences across each individual resistor.

8. What happens to the current in a parallel connection of resistors ?

Ans : 1. In parallel connection of resistors , there is a branches of paths for the flow of current.
2. So the current is divided, it is equal to the sum of the currents passing through each individual resistors .

9. What happens to the potential difference in a parallel connection of resistors ?

Ans : 1. The potential difference is constant in parallel connection of resistors.
2. Because every resistor connected between two common points.

ACIDS , BASES AND SALTS

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

Ans : 1. Curd or sour substances contain acids.
2. So they react with metals releases poisonous salts.
3. That poisonous salts damage the people's health.
4. Due to above reasons curd or sour substances aren't kept in brass or copper vessels.

2. Fresh milk has a pH of 6. How do you think the pH will change as it turns into curd? Explain your answer.

Ans : 1. Fresh milk pH is 6.
2. Milk contains lactose and a small amount of lactic acid.
3. Milk turns into curd with the action of lactobacillus bacteria.
4. When the curd is formed, lactose turn into lactic acid.
5. So the pH of curd is reduced from 6 to 4.5 - 5.5.
6. Finally I would say pH of milk is decreases when it it turns into curd.

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

Ans : 1. Plaster of Paris absorb moisture and form hardest substance called gypsum .
2. To avoid formation of gypsum , it should be stored in a moisture-proof container.

4. Why is it recommended to add acid to water and not water to acid while diluting a concentrated acid?

Ans : 1. Mixing of concentrated acid with water is exothermic reaction.
2. If water is added to acid , huge amount of heat is released.
3. Due to that heat mixture splash out and it causing burns. Some times even glass container

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also break .

4. So adding of acid to water is correct method.

5. A milkman adds a very amount of baking soda to fresh milk. Why does shift the pH of the fresh milk 6 to slightly alkaline?

Ans: 1. pH value of fresh milk is 6 and pH value of baking soda is 8.1.

2. When milkman adds a little baking soda to fresh milk to make it slightly alkaline.

3. The pH value of fresh milk is slightly increased.

4. This basic nature slows down the spoilage of milk .

6. A milkman adds a very amount of baking soda to fresh milk. Why does this milk take a long time to set as curd?

Ans: 1. The milk man made the milk alkaline by adding baking soda.

2. The acids produced during the curd formation are neutralized by the base.

3. Further formation of lactic acid takes long time.

4. So the milk take a long time to set as curd.

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

Ans : 1. Ions are the responsible for the flow of current.

2. Distilled water doesn't contain ions .

3. Due to the absence of ions , distilled water doesn't conduct electricity.

8. Why do acids not show acidic behaviour in the absence of water?

Ans : 1. Acids produce H^+ ions , when they are dissolved in water .

2. Absence of water the formation of H^+ ions cannot takes place.

3. Due to above reasons acids not show acidic behaviour in the absence of water.

9. How does using baking soda in a cake batter make it soft and spongy?

Ans : 1. Baking soda releases carbon dioxide on heating or mixed with water.

2. Released CO_2 forms the bubbles in cake batter . That bubbles makes the cake softy and spongy.

10. What happens if current passing through the brine solution ?

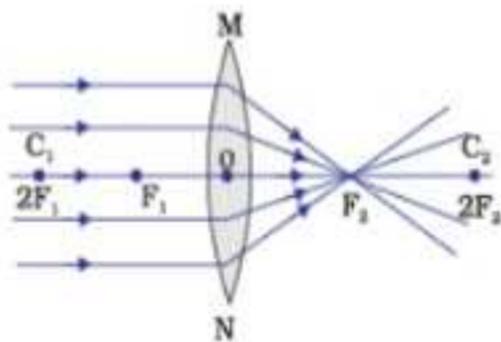
Ans : Current passed through the brine solution Chlorine gas, Hydrogen gas and NaOH is formed.

4 MARKS QUESTIONS WITH ANSWERS

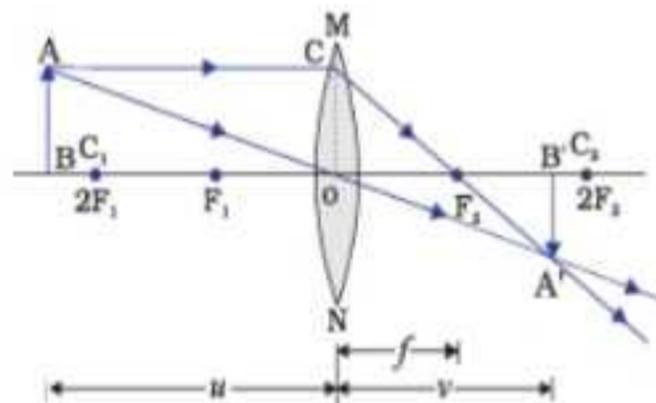
Q.NO : 12 REFLECTION AND REFRACTION OF LIGHT

/ ACIDS BASES AND SALTS/ METALS AND NON METALS

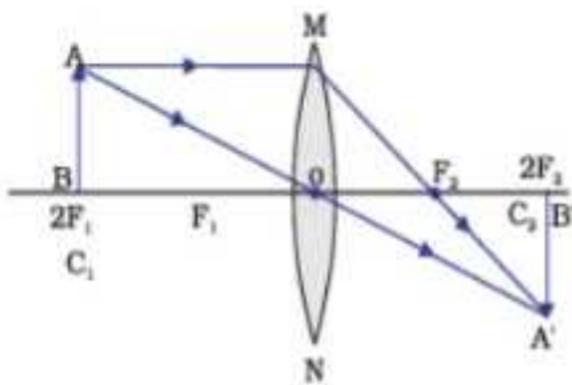
***** 1.Ray diagrams of Convex lens.



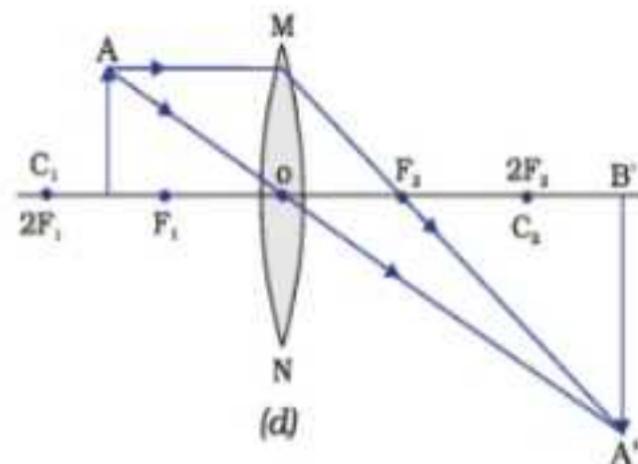
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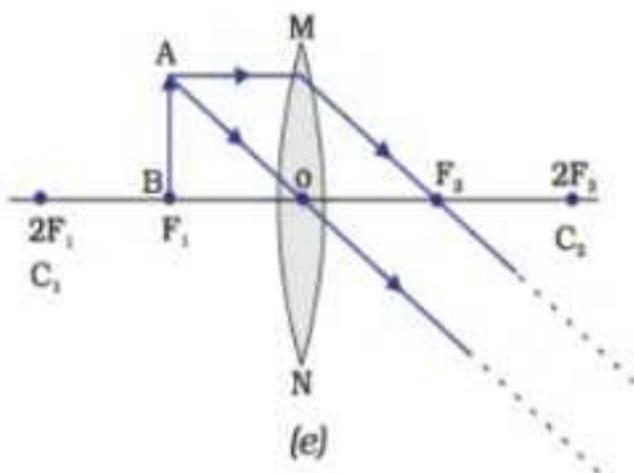
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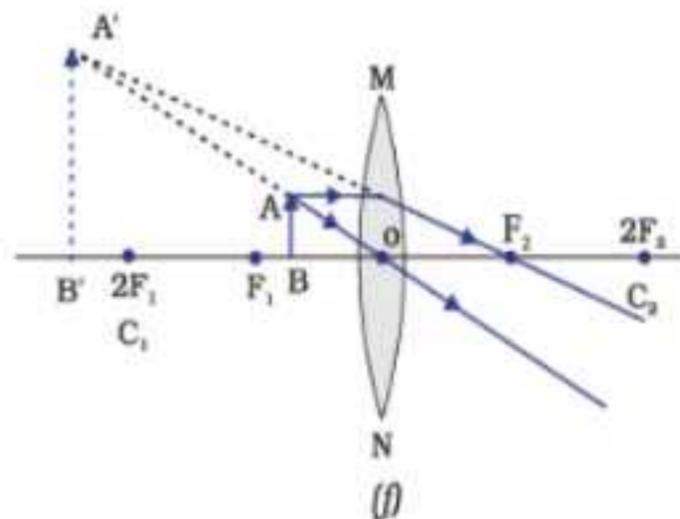
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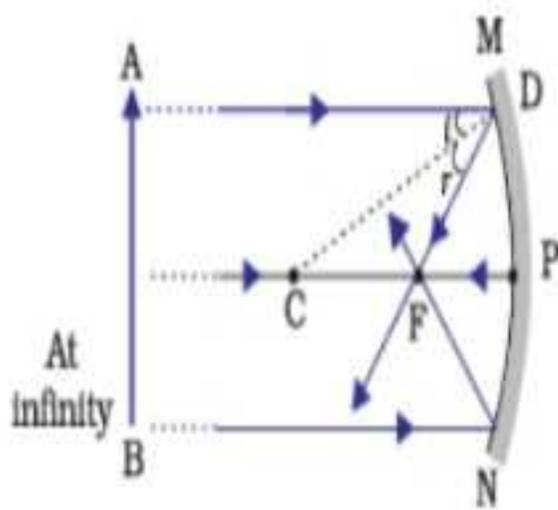


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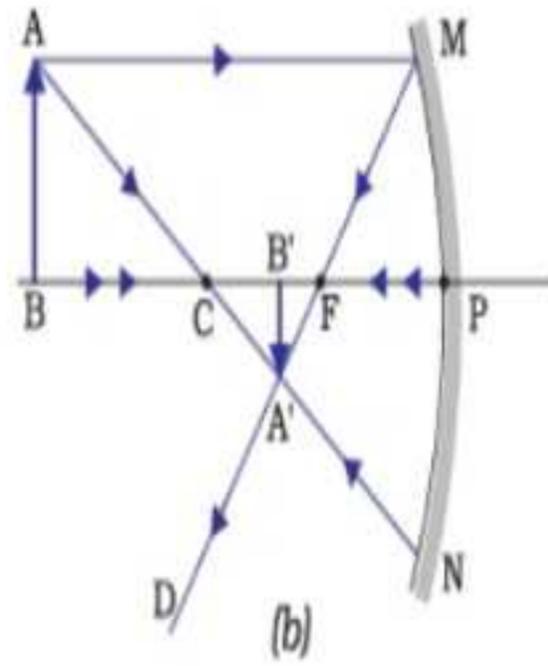


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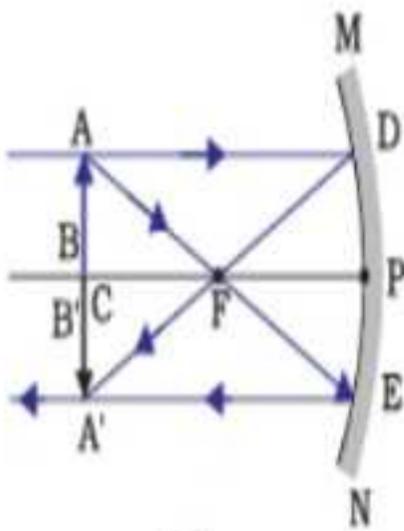
***** 2. Ray diagrams of Concave mirror.



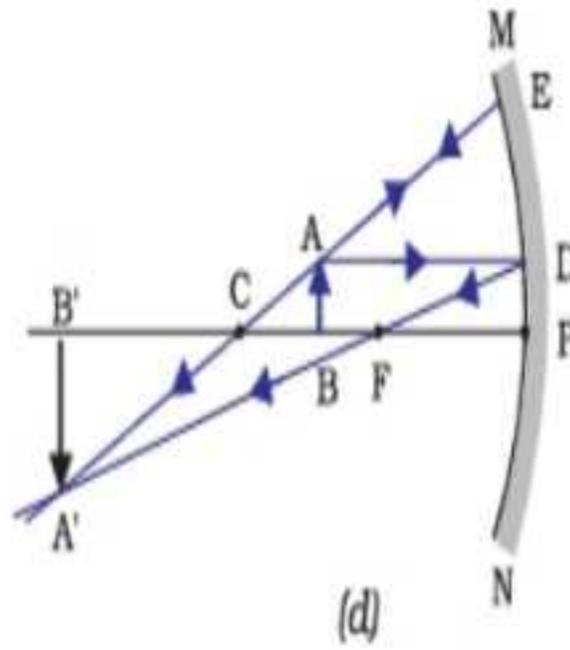
(a)



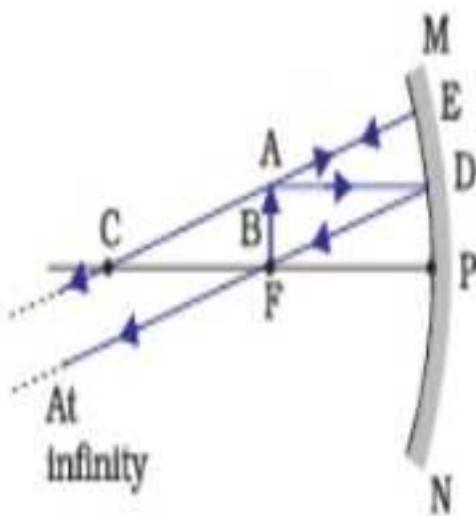
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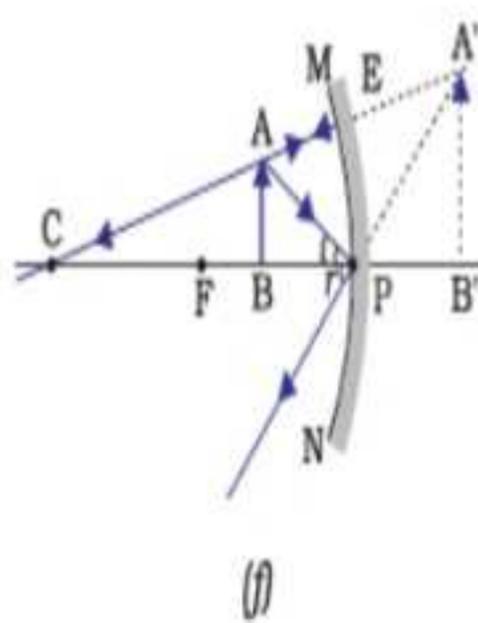
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(d)



(e)



(f)

(OR)

***** 1. Draw the diagram which shows that acid solution in water conducts electricity. (100 percent imp).

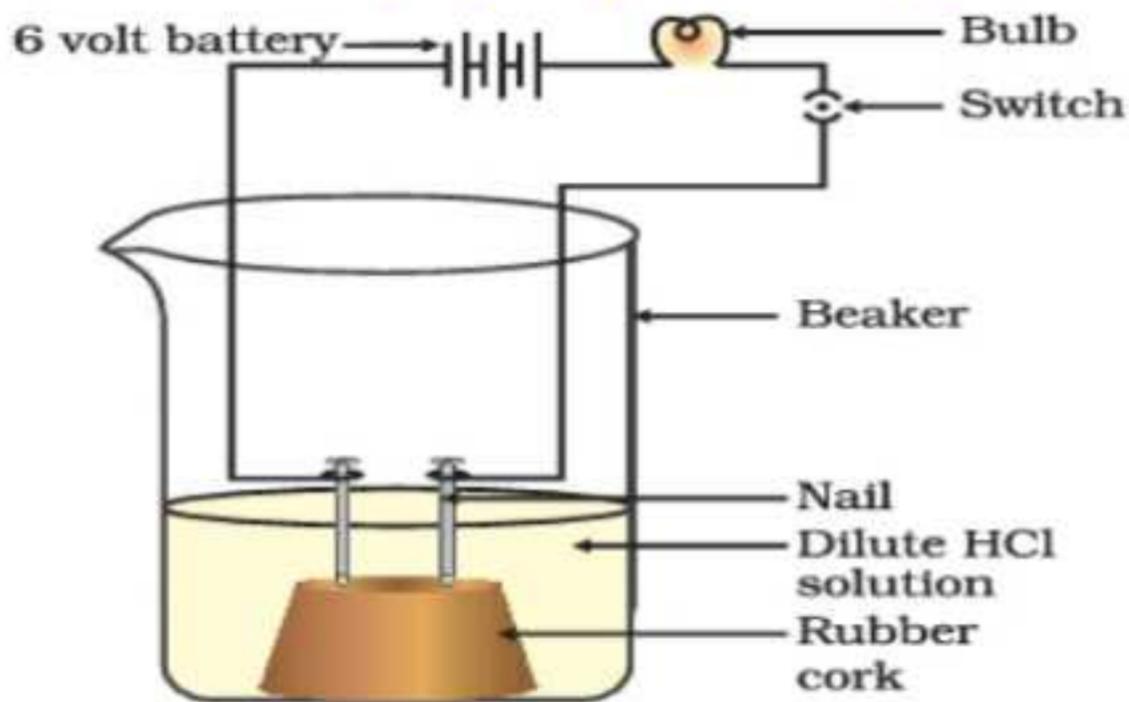


Figure 2.3
Acid solution in water conducts electricity

2. Draw the diagram that showing the reaction of zinc granules with dil. HCl and testing hydrogen gas by a burning matchstick.

Ans :

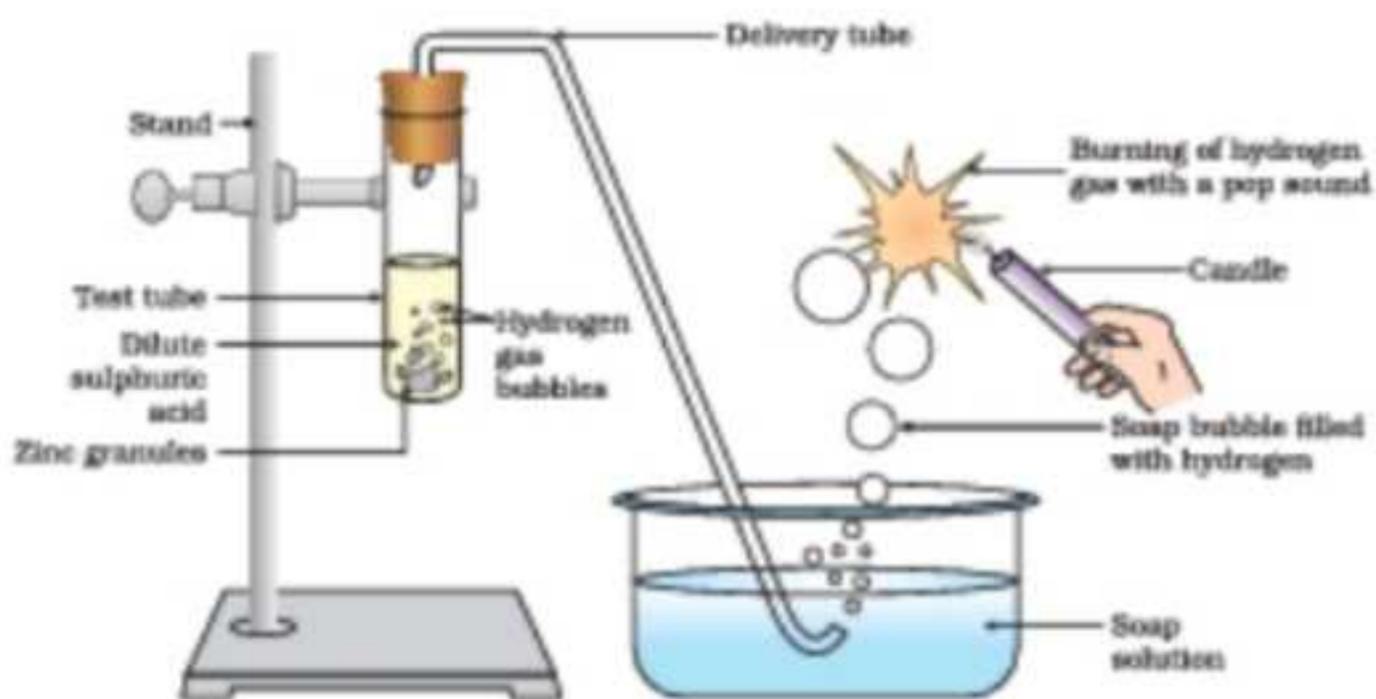


Figure 2.1 Reaction of zinc granules with dilute sulphuric acid and testing hydrogen gas by burning

3. Draw a diagram of passing carbon dioxide gas through calcium hydroxide solution when metal carbonates or metal hydrogen carbonates react with acids.

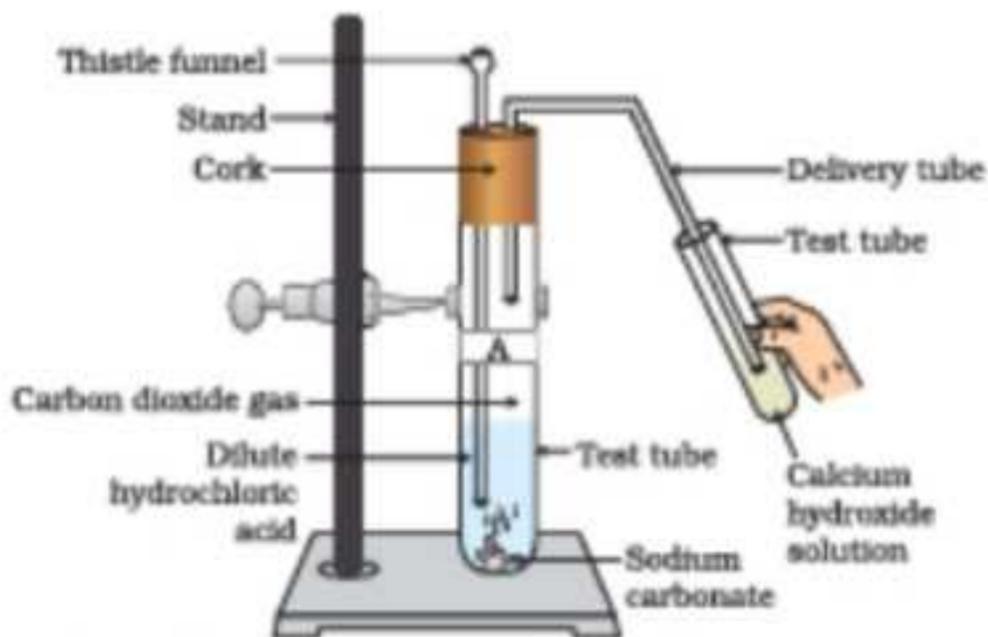


Figure 2.2
Passing carbon dioxide gas through calcium hydroxide solution

4. Draw a neat diagram to show the action of steam on a metal.

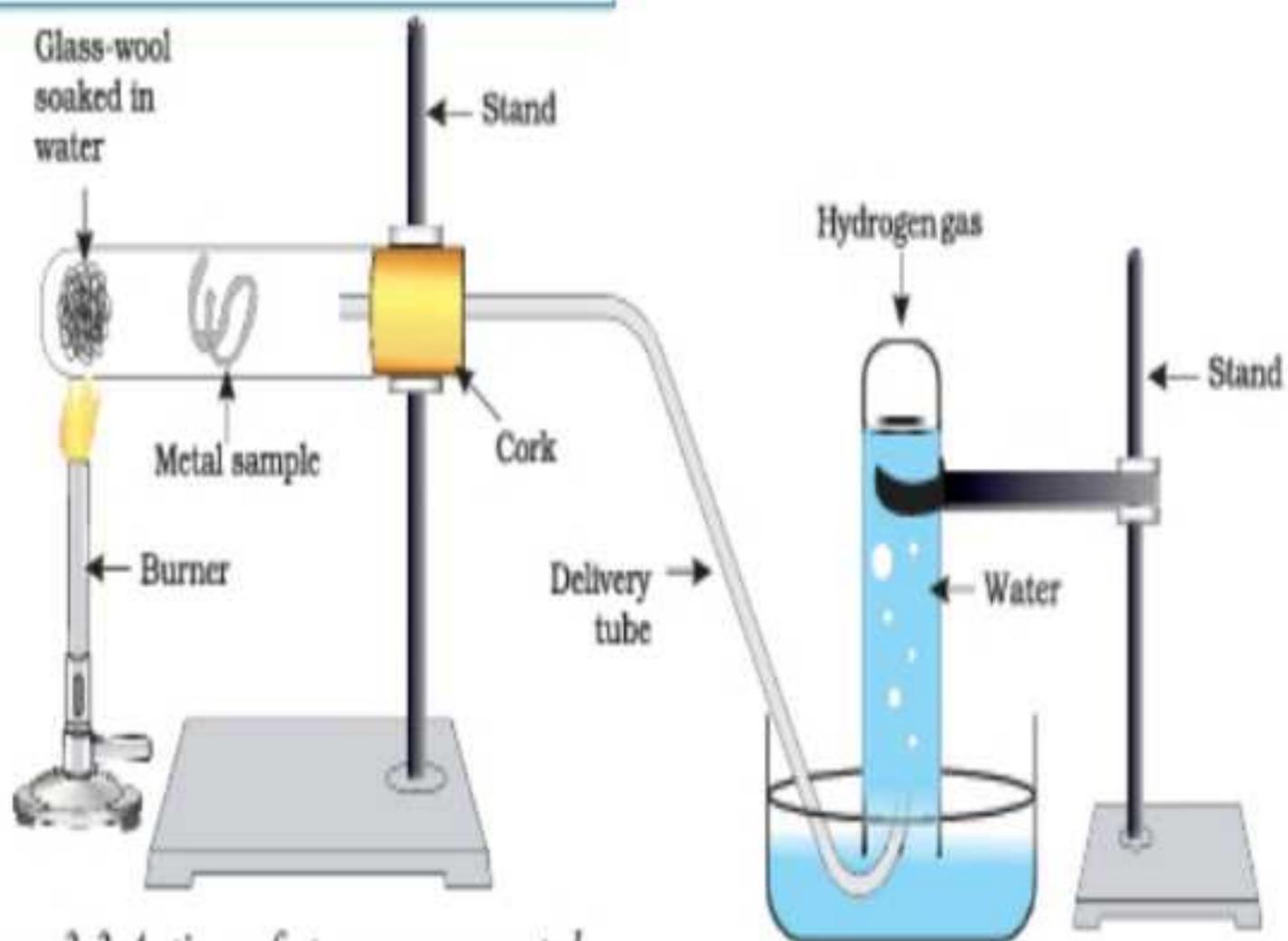


Figure 3.3 Action of steam on a metal

5. Draw a neat diagram to show the electric conductivity of a salt solution .

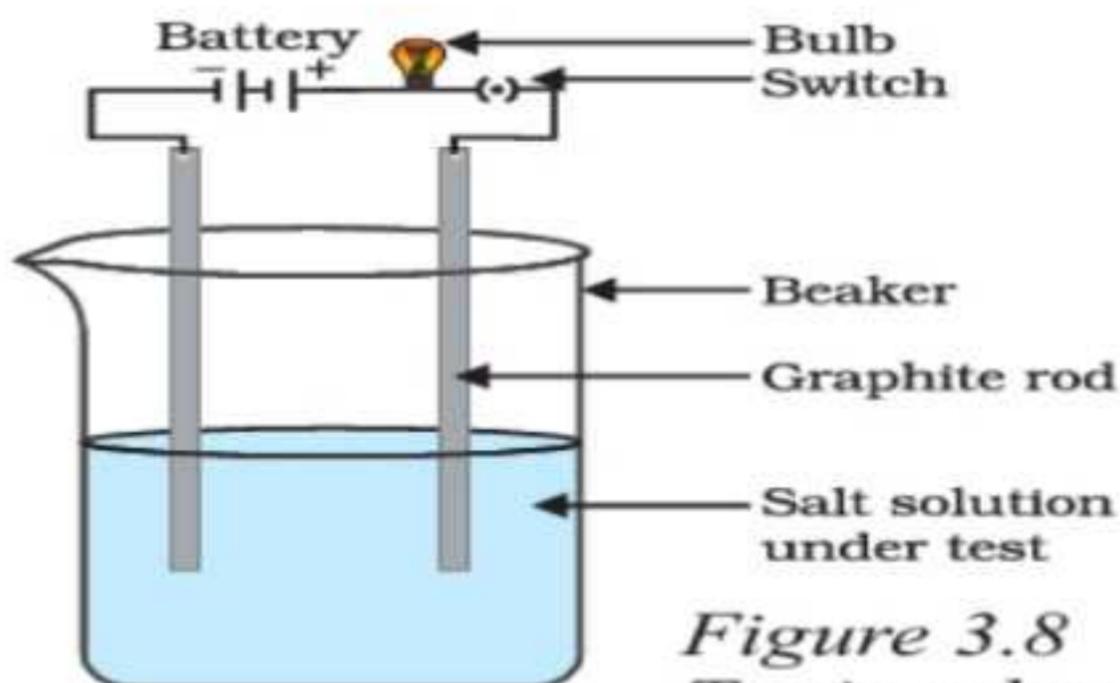


Figure 3.8
Testing the conductivity of a salt solution

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

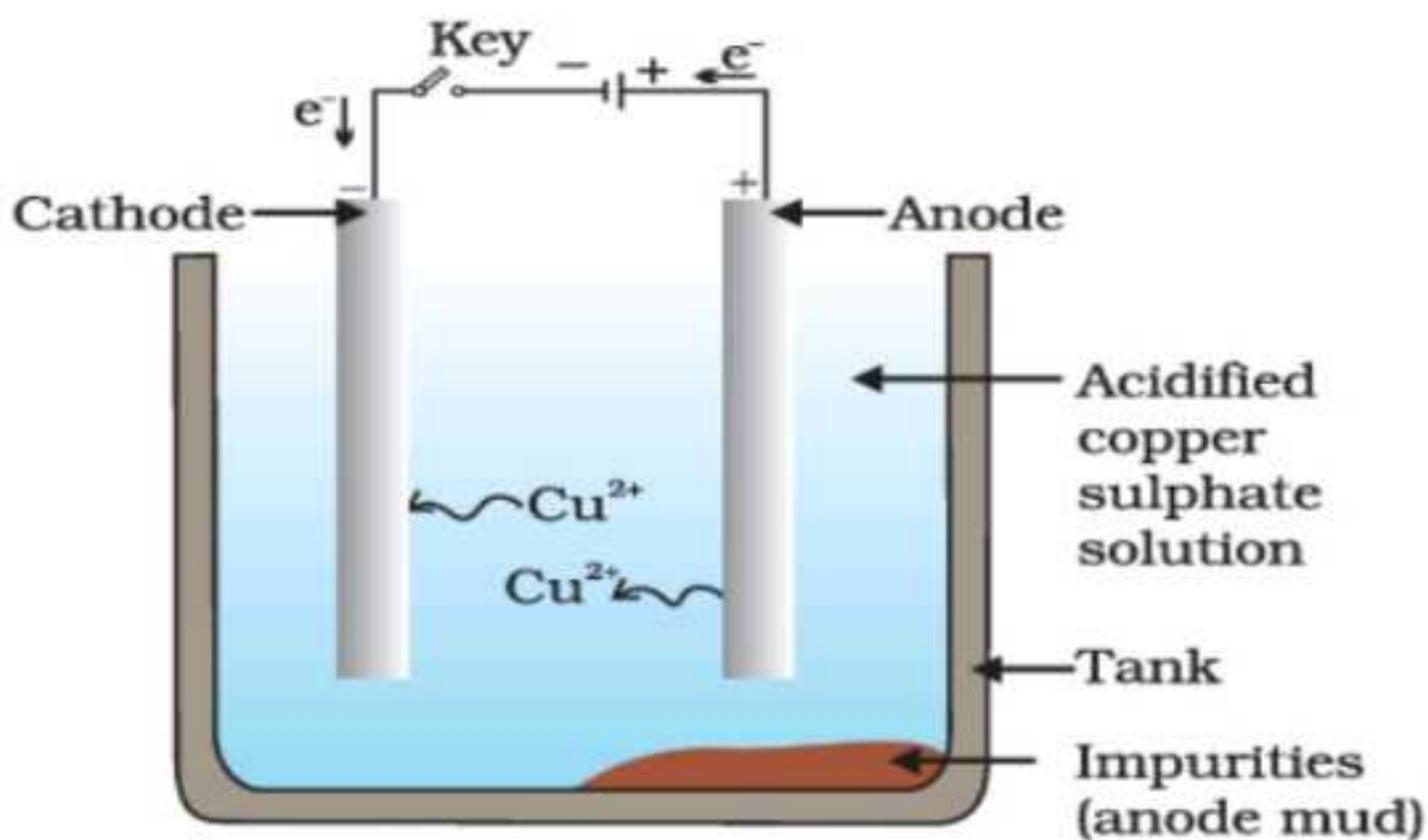


Figure 3.12

Q.NO : 13 ACIDS, BASES AND SALTS / METALS AND NON METALS

*****1. Write any two uses of Baking soda and washing soda ?

Ans : Uses of Baking Soda :

1. It is used in preparing of baking powder .
2. It is used as antacid.
3. It is used as mild antiseptic.

Uses of Washing Soda :

1. It is used in Glass , Paper and Soap industries.
2. It is used in manufacturing of Borax.
3. It is used as cleaning agent in domestic purpose.

*****2. Write any two uses of Bleaching Powder and Plaster Of Paris ?

Ans : Uses of Bleaching Powder :

1. It is used as Bleaching agent in paper and textile industries.
2. It is used as Oxidizing agent in chemical industry.
3. It is used in preparing of chloroform.
4. It is used to make the drinking water free from germs.

Uses of Plaster Of Paris:

1. It is used for making of toys.
2. It is used as doctors for supporting fractured bones in their right position.

3. It is used for making the surface smooth.

4. It is used for decoration purpose.

3. Write the importance of pH in daily life?

Ans : 1. Plants and Animals are pH sensitive :

* The pH of rain water is less than 5.6 is called acid rains.

* This rain water flows into rivers pH value of river water changes.

* So It is very difficult surviving of aquatic animal and Plants.

2. Tooth Decay :

* The pH of the mouth water is less than 5.5 Tooth Decay occurs .

* Bacteria present in our mouth produces acids.

* These acids are formed between the reaction of bacteria and remaining food particles.

* Enamel is hardest substance in our body , but it corroded with acids.

Prevention :

Brush our teeth twice for a day with basic nature tooth paste.

3. pH in our digestive system :

* At the time of in digestion our stomach produces high amount of HCl.

* It causes pain and irritation.

Prevention :

Use milk of magnesia to get relief from in digestion problem.

4. pH of soil :

Plants requires soil pH is 5.5 - 7.5 for healthy growth because they can get the nutrients easily at this range. But in Acidic or alkaline soil plants do not absorb nutrients easily.

5. Self protection of plants and animals :

Some plants and animals release formic acid for self protection.

Ex : Ants and nettle plant.

4. Write any four uses of metals and non metals?

Ans : Uses of metals :

1. Metals are used in making of electrical wires.
2. Metals are used in making utensils.
3. Metals are used in making of jewellery.
4. Metals are used in making of automobiles.
5. Metals are used in making coins.

Uses of non-metals :

1. Iodine is used in making of tincture.
2. Chlorine is used in making of bleaching powder.
3. Oxygen is used in breathing cylinders.
4. Sulphur is used in manufacturing of ointments.
5. Nitrogen is used in manufacturing of ammonia fertilizers.
6. Hydrogen is used in the manufacturing of dalda.
7. Carbon is used as a lubricant in the form of graphite.

5. Write any two advantages of avoiding corrosion and thermite process.

Ans : Advantage of preventing corrosion:

1. Extended metal lifespan.
2. Increase durability of metals.
3. Reduced maintenance cost.

4. Enhanced safety.
5. Increased metal performance.

Advantages of thermite process:

1. To join the railings of railway track
2. To join the cracked machinery parts.

6. Write any four uses of extraction of metals from its ores.

- Ans :
1. Making machinery
 2. Creating coins and currency
 3. Manufacturing vehicles
 4. Producing electrical wires
 5. Building construction
 6. Making tools and equipment
 7. Creating medical equipment.

7. Write any four uses of refining of metals.

- Ans :
1. Removes impurities
 2. Makes metal stronger
 3. Improves metal quality
 4. Increases metal lifespan
 5. Enhances conductivity
 6. Improves appearance

Q.NO : 14 REFLECTION AND REFRACTION OF LIGHT

***** 1.Observe the following table and answer the following questions.

| Material medium | Air | Benzene | Ruby | Diamond | Water | Kerosene |
|------------------|--------|---------|------|---------|-------|----------|
| Refractive Index | 1.0003 | 1.5 | 1.71 | 2.42 | 1.33 | 1.44 |

i) Which material medium is optically rarer? or

Which material medium light travels faster?

Ans : Air (Hint : rarer లో 5 అక్షరాలు కలవు. కావున తక్కువ విలువ గల మీడియం ను టేబుల్ లో గుర్తించుము)

ii) Which material medium is optically denser? or

In which material medium the speed of light is least?

Ans : Diamond (Hint : denser లో 6 అక్షరాలు కలవు. కావున ఎక్కువ విలువ గల మీడియం ను టేబుల్ లో గుర్తించుము)

iii) Write the relation between refractive index and speed of light in the medium?

Ans : Inversely proportional

iv) What is the SI unit of Refractive Index?

Ans : No units

v) Calculate the speed of light in Benzene? (Speed of light in vacuum is $3 \times 10^8 \text{ ms}^{-1}$)

Ans : $2 \times 10^8 \text{ ms}^{-1}$. (Hint Benzene లో B అనునది alphabets లో 2 వ

లెటర్. కావున $2 \times 10^8 \text{ ms}^{-1}$ గుర్తుంచుకోండి గుర్తుంచుకోవాలి)

vi) What happens to the speed of light when light is passing from Water to Kerosene?

Ans : Decreases

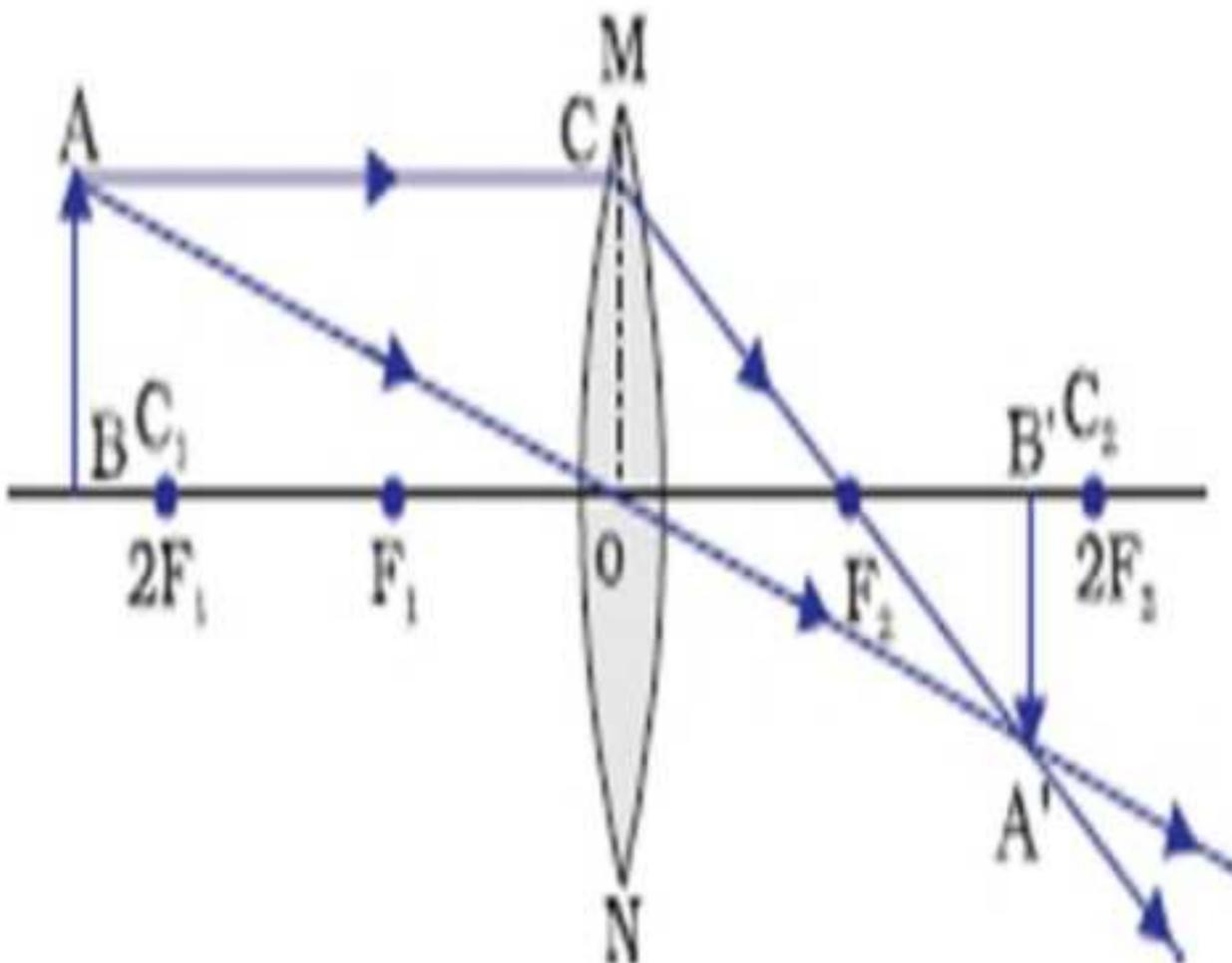
vii) Whether the refracted ray bends towards normal or away from the normal when light ray travelled from Diamond to Air?

Ans : It bends away from the normal, because speed of light increases.

viii) What is reason, refractive index of kerosene is more than the refractive index of water?

Ans : Optical density of kerosene is more than water.

2.



Observe the ray diagram and answer the following questions.

i) Which lens used in this ray diagram?

Ans : Convex lens

ii) Where is the position of the object?

Ans : Beyond $2F_1$

iii) Where the position of the image?

Ans : Between F_2 and $2F_2$

iv) What is the nature of the image?

Ans : Real, Inverted and diminished

v) If focal length of the lens is 10 cm, then what is the radius of curvature of this lens?

Ans : 20 cm

vi) Is magnification being less than 1 or greater than 1?

Ans : Less than 1

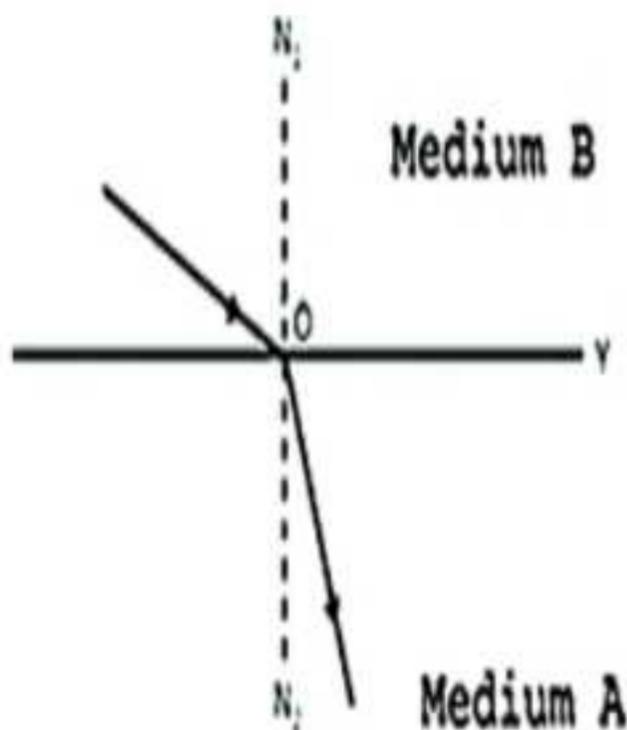
vii) If the height of the object is 10cm at $2F_1$, then what is the height of the image?

Ans : 10 cm

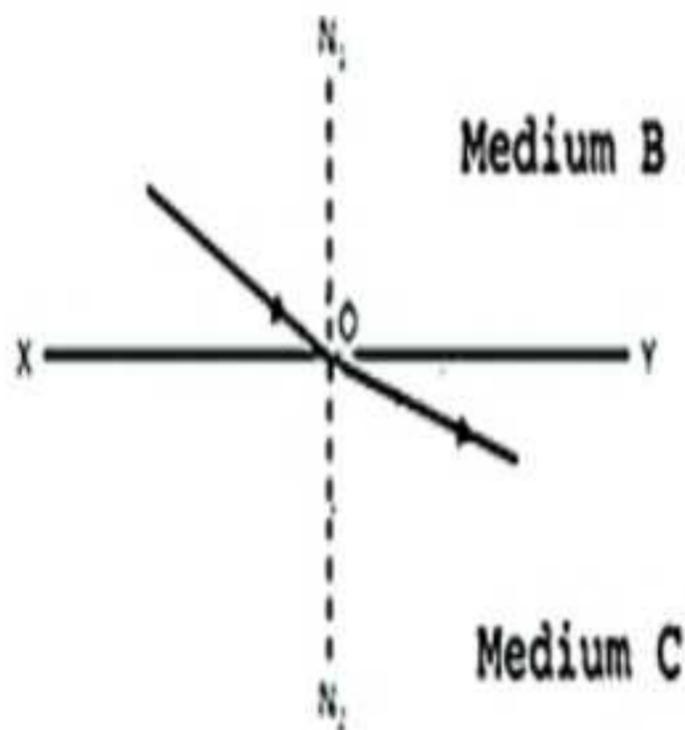
3. Following diagrams show refraction of light in two cases.

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) $C < B < A$

4.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 |
|---------------------------------|-----------------------|---------------------------------------|-------------------------|
| At infinity | At F2 | Highly diminished & point sized image | Real and inverted Image |
| Between F1 and 2F1 | Beyond 2F2 | Enlarged | Real and inverted |
| Beyond 2F1 | Between F2 and 2F2 | Diminished | Real and inverted |
| Between F1 and optical centre O | Same side of the lens | Enlarged | Erected & virtual image |

Note : red colour shows answers.

Students must prepare similar question related to concave mirror.

5.If radius of curvature of the mirror is double times of the focal length, then complete the following table .

| f in (cm) | R (in cm) |
|-------------|-------------|
| 12 | 24 |
| 17.5 | 35 |
| 25 | 50 |

Note : red colour shows answers.

8 MARKS QUESTIONS

SUPER SIX QUESTIONS

Q.NO 15

******* Resultant resistance in Series and Parallel connection**

******* Myopia and Hypermetropia**

**** Explain: Electric Current, Potential difference, Resistivity, Resistance, Ohm's Law , Electric Power, Electric Energy.**

Q.NO 16

Cleansing action of soap

Differences :

******* Ethanol vs Ethanoic Acid**

Soaps vs Detergents

Displacement and Double

Displacement reactions

Q.NO 17

******* Activity: Corrosion Activity**

****** Activity : Metal displaces another metal from its salt solution.**

******* Activity: Acids react with metals releases Hydrogen gas**

****** Activity: Water of crystallisation.**

******* Activity: Alcohol and Glucose contain hydrogen but not categorised as acids.**

You want to write choice questions follow these questions .

Q.NO 16 :

*** Explain types of chemical reactions with examples.**

******* Balancing equations:**

ఎటువంటి కష్టం లేకుండా Easy గా 8 మార్కులు

ఈ QUESTION FA 1 and Pre Final నందు repeated గా అడిగారు. ఒకవేళ పబ్లిక్ లో కూడా ఇదే question అడిగితే D grade students easy గా 8 మార్కుస్ తెచ్చు కునే ట్రిక్.

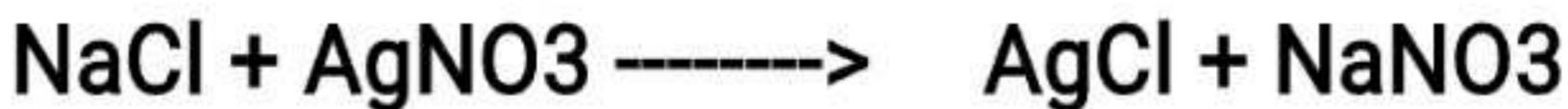
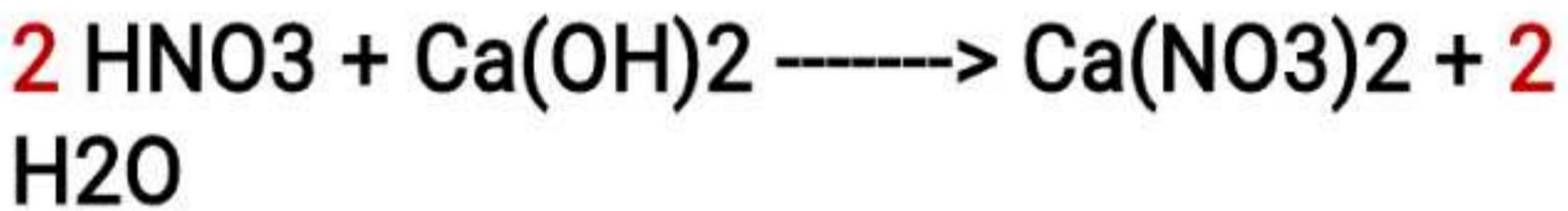
1 అండ్ 2 equation నందు H₂O దగ్గర 2 మరియు మొదటి కాంపౌండ్ దగ్గర 2 ఉంచాలి. Or *_First and last compounds దగ్గర 2 ఉంచాలి*_

3 వ equation ను అలాగే రాయాలి.

4 వ equation నందు

****లాస్ట్ కాంపౌండ్ దగ్గర 2 ఉంచాలి._***

Ans :



Q.NO 17 :

Activity:

**** Oersted activity

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

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

