NEW STANDARD ACADEMY

Semri Kothi Super Market, Raebareli
CLASS 10 (Academy) 21-04-2025

PHYSICS

1. With the help of a simple diagram, briefly explain the process of refraction of light.
2. Define any three important terms in case of refraction with the help of a simple diagram.
3. Discuss the causes of refraction of light.
4. Discuss any one case of refraction of light.
5. Explain, with the help of a simple diagram, refraction of light in a parallel sided glass slab.

CHEMISTRY

1. Why do fire flies glow at night?
2. A solution of potassium chloride when mixed with silver nitrate solution an insoluble white substance is formed . Write the chemical reaction involved and also mention the type of the chemical reaction.
3. Write the balanced chemical equations for the following reactions and identify the type of reaction in each case.
   (i) Nitrogen gas is treated with hydrogen gas in the presence of a catalyst at 773 K to form ammonia gas.
   (ii) Sodium hydroxide solution is treated with acetic acid to form sodium acetate and water.
   (iii) Ethanol is warmed with ethanoic acid to form ethyl acetate in the presence of concentrated H_2SO_4-
   (iv) Ethene is burnt in the presence of oxygen to form carbon dioxide, water and releases heat and light.
4. During the reaction of some metals with dilute hydrochloric acid, following observations were made
   (i) Silver metal does not show any change.
   (ii) The temperature of the reaction mixture rises when aluminium (Al) is added.
   (iii) The reaction of sodium metal is found to be highly explosive.
   (iv) Some bubbles of a gas are seen when lead (Pb) is reacted with the acid
   Explain these observations giving suitable reasons
5. A silver article generally turns black when kept in the open for a few days. The article when rubbed with Toothpaste again starts shining
   (i) Why do silver articles turn black when kept in the open for a few days? Name the phenomenon involved.
   (ii) Name the black substance formed and give its chemical formula

BIOLOGY

1. How gas exchanges take place in lungs ?
2. What is tidal volume?
3. What is mechanism of inspiration?
4. What is the mechanism of expiration?
5. What is the role of diaphragm in breathing

Math

1. Find the integral value (s) of m for which the x –coordinate of the point of intersection of the lines represented by y = mx + 1 and 3x + 4y = 9 is an integer.
2. If x+1is a factor of $2x^3+ax^2+2bx+1$, then find the values of a and b given that 2a – 3b = 4.
3. In a triangle ABC,$\angle C$ =3 $\angle B = 2(\angle A + \angle B)$. *Find all the angles in degrees*
4. Solve the pairs of linear by the elimination method
   $\frac{x}{a}+\frac{y}{b} = a + b$, $\frac{x}{a^2}+\frac{y}{b^2} = 2$, a≠ $0, b \neq 0$
5. Solve the following pair of linear equations for x and y
   $\frac{b}{a}x + \frac{a}{b}y = a^2 + b^2$ and x + y 2ab.