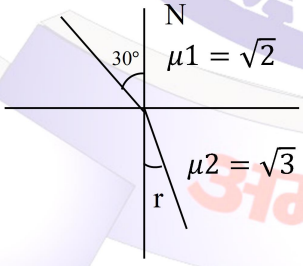
NEW STANDARD ACADEMY

Marks: 80

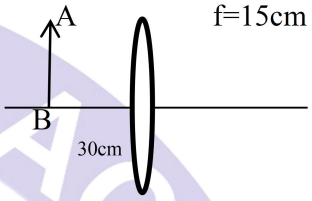
Date : 29-04-24 **CLASS : 10TH** **Time: 3Hrs.**

PHYSICS

1. What is refraction? Write the laws of refraction.
2. Write the rule to draw image for convex lens
3. Draw the ray diagram of an object kept between F1&C1 (2F1) and write the nature.
4. At what distance should an object be placed from a convex lens of focal length 18cm to obtain an image at 24cm from it on the other side.
5. Explain refraction through a glass slab with ray diagram.
6. A 4cm tall object is placed perpendicular to the principal axis of a convex lens of focal length 24cm. The distance of the object from the lens is 16 cm. Find the position, size and nature of image.
7. Draw the ray diagram to show the formation of image of object placed between infinity and the optical center of a concave lens.
8. If the refractive Index of glass w.r.t air 3/2 and water w.r.t air is 4/3then refractive index of glass with respect to water.
9. Find angle of refraction



10. Find position & nature of image.



CHEMISTRY

1. Why is respiration considered an exothermic reaction?
2. Defind a balanced chemical equation.Why should an equation be balanced?
3. Give an example each for thermal decomposition and photochemical decomposition reactions. Write relevant balanced chemical equations also.
4. (i) Name the reducing agent in the following reaction:
   $3MnO_2 + 4Al \longrightarrow 3Mn + 2Al_2O_3$
   (ii) Which is more reactive, Mn or Al and why?
5. When a solution of potassium iodide is added to a solution of lead nitrate in a test tube a reaction takes place.
   (i)What type of reaction is this?
   (ii) Write a Balanced chemical equation to represent the above reaction.
6. Hydrogen being a highly inflammable gas and oxygen being a supporter of combustion, yet water which is a compound made up of hydrogen and oxygen is used to extinguish fire. Why?
7. Name the products formed on strongly heating ferrous sulphate crystals. What type of chemical reaction occurs in this change?

8. What is observed when a solution of sodium sulphate is added to a solution of barium chloride taken in a test tube? Write equation for the chemical reaction involoed and name the type of rection in this case.
9. What is meant by:
   i) Precipitation reaction
   ii) Exothermic reaction
   iii) Oxidation reaction
10. Identify the type of reactions taking place in each of the following case and write the balanced chemical equation for the reactions:
   (i) Zinc reacts with silver nitrate to produce zinc nitrate and silver.
   (ii) Potassium iodide reacts with lead nitrate to produce potassium nitrate and lead iodide.

BIOLOGY

1. Explain the respiratory tract
2. Explain the mechanism of breathing.
3. Draw the Neat and Clean diagram of human Lungs and also labeled it.
4. Define the breathing .What is the Normal Breathing rate in humans.
5. Why is diffusion insufficient to meet the oxygen requirements of multicellular organisms like us(humans)?
6. What advantages does a terrestrial organism possess over aquatic organism with regard to obtaining oxygen for respiration?
7. What are the different ways in which glucose is oxidized to provide energy in various organisms?
8. How is oxygenated carbon dioxide transported in human beings?
9. What are the differences between aerobic and anaerobic respiration? Name the organisms that use the anaerobic mode of respiration.
10. Why is the rate of breathing in aquatic organisms much faster than in terrestrial organisms?

MATHS

1. Solve the following pair of equations by substitution method:
   2x+3y =9; 3x+4y = 5
2. For what value of K, will the following pair of linear equations have no solution?
   2x+3y =1 and (3K-1)x+(1- 2K)y =2K+3
3. The difference between two numbers is 2. Their product is 84 greater than the square of the smaller number. What is the sum of numbers?
4. The equtions ax+b=0and cx+d=0 are consistent if:
5. On comparing the ratios $\frac{a_1}{a_2}, \frac{b_1}{b_2}$ and $\frac{c_1}{c_2}$, Find out whether the lines equations are consistent, or inconsistent:
   (i) 3x +2y =5; 2x -3y = 7
   (ii) 2x-3y = 8;4x -6y =9
6. Form the pair of linear equation in the following problems, and find their solutions(if they exist) by the elimination method:
   i) Five years ago, Nuri was thrice as old as Sonu. Ten years later,nuri will be twice as old as sonu. How old are nuri and sonu?
7. Solve the following pairs of equations by reducing them to a pair of linear equations:
   $\frac{1}{3x+y} + \frac{1}{3x-y} = \frac{3}{4}; \frac{1}{2(3x+y)} - \frac{1}{2(3x-y)} = \frac{-1}{8}$
8. Places A and B are 100 km apart on a highway. One car starts from A and another from B at the same time. If the cars travel in the same direction at different speeds, they meet in 5 hours. If they travel towards each other, they meet in 1hour.What are the speeds of the two cars?
9. The denominator of a rational number is greater then its numerator by 3. If 3 is subtracted from the numerator and 2 is added to the denominator, the new number becomes1/5. What was the original number?
10. The coach of a cricket team buys 7 bats and 6 balls for for Rs. 3800. Later he buys 3 bats and 5 balls for Rs.1750. find the cost of each ball: