# NEW STANDARD ACADEMY

**Marks: 60**

**Date : 21-04-25** **CLASS : 11TH** **Time: 3 hours.**

## PHYSICS

Integrate followings

1. $\int_0^{2\pi} \sin^2 x\, dx$
2. $\int tanx\, dx$
3. $\int \left[\frac{x^3-8-6x(x-2)}{x^2-4x+4}\right] dx$

Differentiate to find maximum value of y or minimum value of y if any.(maxima/minima)

4. $y = \frac{3x}{2} - 4x^3 + 4$
5. $y = x^3-7x^2+2$
6. $y = 10x^2-5$

Find the value of following-

7. $\tan(720^0)$ =?
8. $\sin(270^0)+\cos(270^0)$= ?
9. $\cot(135^0)$ = ?
10. $\text{Cosec}(150^0)$ = ?

## CHEMISTRY

1. What do you mean by atomic mass/mass number of an element?
2. Convert the speed 6 km/ minute into SI units.
3. Convert in SI units
   (a) -10℃ (b) 5.5 Feet
4. 0.65 g of Zn was put in a solution of 1.5g $CuSO_4$ and the Cu thus precipitated weighed 0.635 g. What weight of zinc sulphate will recovered on evaporation of the remaining solution.
5. (a) 1.75 g copper gives 2.19g copper oxide
   (b) 1.135 g copper gives 1.430 g copper oxide.
   Show that these data confirm the law of definite proportion.
6. Tin forms two oxides. The % of tin in the two oxides is 78.77 and 88.12.show that these data confirm the law of multiple proportion.
7. In $CO_2$, $CS_2$ and $SO_2$ the % of C,S and O is 27.27, 84.21 and 50 respectively .Show that these results illustrate law of reciprocal proportion.
8. 10 liter of hydrogen and 3 litre of $Cl_2$ are made to react to maximum possible exent. What is the final volume of reaction mixture ? Pressure and temperature remain constant.
9. Calculate the volume of 1.5 moles of $N_2$ at STP.
10. Calculate the number of moles and atoms in 44.8 litres of $SO_2$at STP.

## BIOLOGY

1. What is the import ants of phospholipid in plasma membrane ?
2. What is unit membrane model explain?
3. Draw the fluid mosaic model of plasma membrane.
4. Draw the label diagram of bacteria.
5. Give four difference between prokaryote and eukaryotic cell.
6. What is osmosis give the example?
7. What is the facilitated diffusion give the example?
8. What is the protoplast explain?
9. Define cytosol with example.
10. What is the endo membrane system explain?

## MATH

1. Solve $|x-1|+|x-2| \geq 4$.
2. Solve $|x^2+x-4|=|x^2-4|+|x|$.
3. Solve $(x-1)^2(x-2)^3(x-4)^4 \geq 0$
4. Solve $\frac{2x-5}{3x-1} > 3$.
5. Solve $\frac{x(3-4x)(x+1)}{2x-5} < 0$
6. If $A=\{x \in \mathbb{R}/\sqrt{x^2-8x+15} \in \mathbb{R}\}$ and $B=\left\{x \in \mathbb{R}/\frac{x-3}{2x-5} < \frac{x-6}{2x-11}\right\}$, $then\ A \cap B =$
7. The set of values of x which satisfy the in equations $5x + 2 < 3x + 8$ and $\frac{x+2}{x-1} < 4$ is
8. The solution set of the inequality $2^{x+2}-2^{x+3}-2^{x+4} > 5^{x+1}-5^{x+2}$ is
9. Set of all values of x satisfying the equation $|x+1| = 5-|x-4|$ is
10. The number of positive integral solutions of $x^2+9 < (x+3)^2 < 8x+25$ is _____