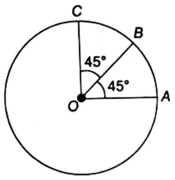
NEW STANDARD ACADEMY

Marks: 60

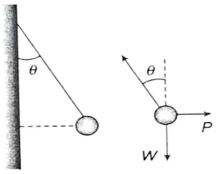
Date : 13-05-24 **CLASS : 11TH** **Time: 3 HRS**

PHYSICS

1. A car travels along a straight line for first half time with speed 40 km h^{-1} and second half time with the speed of 50 km h^{-1}. Write the mean speed of car.
2. The velocity of a bullet is reduced from 200 m/s to 100m/s while travelling through a wooden block of thickness 10cm. The retardation, assuming it to be uniform, will be?
3. If $\vec{A}+\vec{B}=\vec{R}$ and $A^2+B^2=R^2$, Find the angle between $\vec{A} and \vec{B}$.
4. Differentiate between speed(a) and velocity.
5. The sum and difference of two vectors are perpendicular to each other. Prove that the vectors are of equal magnitude?
6. Find the resultant of three vectors$\overrightarrow{OA},\overrightarrow{OB},AND\ \overrightarrow{OC}$ shown in the following figure. Radius of the circle is R.



7. A vector $\vec{a}$ is turned without a change in its length through a small angle dθ. The value of $|\Delta\vec{a}|$ and $\Delta\ \alpha$ are respectively.
8. A particle moves towards east with velocity 5m/s. After 10 seconds its direction changes towards north with same velocity.The average acceleration of the particle is
9. A force $\vec{F}=-K(y\hat{\imath}+x\hat{\jmath})$(Where K is appositive constant) acts on a particle moving in the x-y plane. Starting from the point (a,0) and then parallel to the y-axis to the point (a,a). The total work done by the forces $\vec{F}$ on the particle is
10. A metal sphere is pushed away from the wall by a stick. The forces acting on the sphere are shown in the second diagram. Find the relation between P,W and θ.



CHEMISTRY

11. Write Helix rule of classification of elements
12. How many groups and periods are in Mendeleev's periodic table, describe them in short.
13. Why the need of classification of elements is necessary?
14. Write Doberiners triad rule of classification with example.
15. Write the main merits and demerits of Mendeleev's Classification
16. Electronic configuration of X is $1s^2,2s^2,2p^6,3s^2,3p^64s^23d^5$ It belongs to
17. The diagonal relationship between Li and Mg is due to
18. ns^2np^4(n =outermost orbit) represents the valency electrons. The corresponding group would be
19. Electronic configuration of X is $1s^2,2s^2,2p^6,3s^2,3p^1$. It belongs to
20. Describe Lothar mayer curve?

BIOLOGY

21. What is difference between Biomicromolecule and Biomacromolecule
22. Which type of glycosidic bond present in sucrose and maltose?
23. Give the molecular formula of sucrose also

draw its structural formula.

24. What are phospholipids give its structural formula?
25. Give the difference between saturated and unsaturated fat.
26. Give the name of bond which is present between two monosaccharides explain it.
27. What is the difference between primary and secondary metabolites also give its example.
28. Draw the structure of phospholipid lecithin molecule.
29. What is acid insoluble and acid soluble pool give its example.
30. Give the example of two homopolymer of polysaccharide. Which type of bond present in these homopolymer.

MATHS

21. Let X be any non- empty set containing n elements, then the number of relations on X is

22. The largest set of real values of x for which $f(x)= \sqrt{(x+2)(5-x)} - \frac{1}{\sqrt{x^2-4}}$ is a real function is
23. Let B ={ 1,2,3,4,5…..30}, A = {2,3,4,5,6,7,8,9,10}, A relations from A To B defined by R = {(a,b): b =4a, a ∈ A, b∈B} then Domain, rang of R
24. Domain of the function

$$f(x) = \sqrt{(5x-6-x^2)[In\{x\}^4]} + \sqrt{7x-5-2x^2} + \left(In\left(\frac{7}{2}-x\right)\right)^{-1}$$

{.} represents fractional part function and [.] represents G.I.F.

25. The domain of the function $f(x)= log_{3/2}log_{1/2}log\pi log_{\pi/4}x$ *is*
26. Let A and B are two sets such that A×B consists of 6 elements. If three elements of A×B = (1,2_,(2,3),(4,3) then the remaining order pairs of A×B are.
27. Consider two sets A = {a,b} ,B={e,f}, If maximum numbers of relations from A to B , A to A,B to B are *l,m,n* respectively then the value of $2l - m - n$ *is*
28. If a,b,c,d,e are positive real numbers, such that $a+b+c+d+e = 8$ and $a^2+b^2+c^2+d^2+e^2 = 16$ Find the range of e
29. Draw the graph of the following function :
    a. Y=-sin-1(x-1) b. $y=\frac{1}{x-3}+6$
    c. $Y=|x^2 - 2x - 3|$
30. In a certain city, only two newspapers A and B are published. It is known that 25% of the city population reads A and 20% reads B, while 8% reads A and B. It is also known that 30% of those who read A but not B, look into advertise-ments and 40% of those who read B but not A, look into advertisements while 50% of those who read both A and B,look into vertisements. What per cent of the population read on advertisement?