NEW STANDARD ACADEMY

Marks: 80

Date : 30-06-25 **CLASS : 9TH** **Time: 3 hours.**

PHYSICS

1. A body moves in a circular path and returns to the starting point. What is its displacement? Explain.
2. A car is moving with a velocity of 20 m/s. After 5 seconds, its velocity becomes 30 m/s. Find its acceleration.
3. A car accelerates from 10 m/s to 30 m/s in 5 seconds. Calculate the acceleration and distance covered.
4. Can a body have zero velocity and still be accelerating? Explain with an example.
5. A ball is thrown upward with a speed of 20 m/s. How long will it take to reach the highest point? (Take g = 10 m/s^2)
6. Name the physical quantity that corresponds to the rate of change of velocity.
7. What is the acceleration of a body moving with uniform velocity in a straight line?
8. What is the numerical ratio of velocity to average speed of an object when it is moving along a straight path?
9. Calculate the force needed to produce an acceleration of 5 m/s^2 on a wooden cube of mass 5 kg.
10. Find the momentum of a man of mass 75kg when he walks with a velocity of 2 m s^{-1}.

CHEMISTRY

1. Differentiate between heat and temperature. Why are both important in understanding changes of state?
2. Why do naphthalene balls disappear with time without leaving any solid? Explain the process involved.
3. Why does water at 100°C boil without a rise in temperature even though heat is continuously supplied?
4. Why do liquids generally have lower density than solids, but higher than gases?
5. How can you liquefy a gas? Mention two ways.
6. What are the characteristics of the particles of matter?
7. What is the effect of temperature on the rate of diffusion of particles
8. Define diffusion with examples. What is the decreasing order of diffusion of the particles of solids liquids and gases?
9. What about a sponge? It is a solid , yet we are able to compress it, why?
10. Why does the kinetic energy decrease in the order,

    Gases> Liquids > Solids

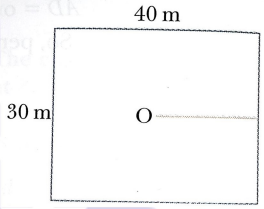
    Or why is kinetic energy of liquids more than solids?

BIOLOGY

1. Name any two cell organelles that contain their own DNA.
2. What is the function of the nucleus in a cell?
3. Why are lysosomes known as ‘suicidal bags’ of a cell?
4. Why is the plasma membrane called a selectively permeable membrane?
5. Define cell. Who discovered the cell and in which year?
6. What are isotonic, hypotonic and hypertonic solutions? What will happen to a normal cell if it is kept in each type of these solutions?
7. What is the difference between endosmosis and exosmosis ? Give one example.
8. Mitochondria is known as the 'powerhouse' of the cell. Explain.
9. Draw the labell diagram chloroplast.
10. Cell walls are present in which of the following organisms: bacteria, fungi, plants, animals?

MATHS

1. Find the value of x if the distance between the points (x, 5) and (1, -2) is 10 units.
2. Find the distance between the points A(−4,3) and B(2,−1). Also, find the midpoint of AB.
3. Find the value of k if the polynomial *p(x) = x3 – 4x2 + x + k* is divisible by *x – 1*.
4. Divide $2x^4 - 3x^3 + 4x^2 - 5x + 6$ by $x^2 - 2x + 1$ and write the quotient and remainder.
5. Find the remainder when $x^3 + 3x^2 + 3x + 1$ is divided by $2x + 3$.
6. If x +1 is a factor of $2x^2+kx$ then the value of k is:
7. Factories $(x-2y)^3 + (2y-3z)^3 + (3z-x)^3$ using suitable identity.
8. In the ordered pair (a, -12) if the second member of the pair is 4 times the first member, then the missing member a is:
9. A lamp post has to be fixed right at the centre of a rectangular lawn as shown in the figure. At what distance from acorner should the lamp post be fixed?



10. P is the point (-5,3) and Q is the point (-5,m). If sum of abscissas and ordinates of both points is equal,then the possible value of m is