NEW STANDARD ACADEMY

Marks: 80

Date : 23-06-25 **CLASS : 9TH** **Time: 3 hours.**

PHYSICS

1. An airbus runs on a runway from rest. Its final velocity is 810km h^{-1} . The length of the runway is 1000 m. Calculate the uniform acceleration of the airbus .
2. What does a line graph represents in v-t graph if it is parallel to time axis?
3. When are the displacement –time graph and distance- time graph similar?
4. Write position time relation of motion.
5. Draw velocity –time graph for a uniformly accelerated object. Using velocity –time graph derive S = ut + $\frac{1}{2}at^2$
6. An object travels 16 m in 4 s and then another 16 m in 2s . What is the average speed of the object?
7. An athlete runs along a circular track of radius 100 m. Calculate the displacement of the athlete and the distance travelled by him when he covers $\frac{3}{4}$ th of the track.
8. Distinguish between speed and velocity.
9. What does the odometer of an automobile measure?
10. When will you say a body is in (i) uniform acceleration , and (ii) non-uniform acceleration?

CHEMISTRY

1. Why do solids generally lack the property of diffusion?
2. Name the techniques used to separate
   (a) Butter from curd
   (b) Salt from sea water
   (c) Oil and water
3. (a) Under which category of mixtures will you classify alloys and why
   (b) A solution is always a liquid . Comment.
4. Explain the following terms giving examples.
   (i) Pure substance (ii) Colloid
   (iii) Suspension
5. For any substance, why does the temperature remain constant during the change of state?
6. Identify the physical and chemical changes from the following
   (a) Tarnishing of silver spoon
   (b) Sublimation of iodine
7. Tarun got an invitation to attend a party. On coming to his place, he found that both his shirt and pants were wet. What steps he would take to dry them quickly?
8. Why Doctors advise putting strips of wet cloth on the forehead of a person having a high temperature.
9. Suggest a method to liquefy atmospheric gases.
10. The smell of hot sizzling food reaches us several metres away. However, it is not so in case the food is cold. Explain.

BIOLOGY

1. What is cell theory ? Who propounded it?
2. Mitochondria is known as the powerhouse of the cell. Explain
3. What is the difference between endosmosis and exosmosis ? Give one example.
4. What are prokaryotic cells? Give two examples.
5. Mention three features found only in plant cells and one found only in animal cells
6. What are isotonic , hypotonic and hypertonic solution ? what will happen to a normal cell if it is kept in each type of these solution?
7. Describe in brief the various cell organelles found in a plant cell.
8. (a) List various components of the nucleus.
   (b) Give chemical composition of Chromosome.
   (c) List the type of chromosome if it has the following position of centromere.
   (i) in the middle
   (ii) at the tip of chromosome.
9. (a) Name the cell organelle which is commonly called ‘suicidal bags’ of the cell. Explain
   (b) How do they arise?
10. What are the two types of cell division? Briefly describe

MATH

1. If $p(x) = x^3 + 3x^2 - 2x + 4$, then find the value of $p(2)+p(-2) - p(0)$.
2. Find the remainder when the polynomial $4y^3 - 3y^2 + 5y + 1$ is divided $2y+3$.
3. If $(x-a)$ is a factor of $3x^2 - mx - nx$, then prove that $a = \frac{m+n}{3}$
4. If $x + \frac{1}{x} = 5$ find the value of $x^3 + \frac{1}{x^3}$.
5. The distance between the images of points P(-7,4) and Q(7,4) in x –axis is:
6. If (x+3,5) = (2,2-y), then the values of the x and y are :
7. If the coordinates of a point M are (-2,9) which can also be expressed as $(1+s,t^2)$ and $t > 0$, then find the coordination of P(2s,-3t) and $Q(s^2,1-t)$
8. If $x = 2p + 1$ and $y = p - 1$ is a solution of the linear equation $2x - 3y + 5 = 0$ then find the value of p.
9. Write four different solutions of the equation $x + 2y = 6$.
10. If $(m - 2 , 2m + 1)$ lies on equation $2x + 3y - 10 = 0$, find m,