# NEW STANDARD ACADEMY

## PHYSICS

1. A particle is moving up an inclined plane. Its velocity changes from 25m/s to 10m/s in 5 seconds. What is its acceleration?

2. The velocity changes from 35m/s to 60m/s in 3 seconds. What is its acceleration?

3. A body covered a distance of 4 metre along a semicircular path. Calculate the magnitude of displacement of the body, and the ratio of distance to displacement?

4. A particle moving with an initial velocity of 8m/s is subjected to a uniform acceleration of $2.5 m/s^2$. Find the displacement in the next 4 sec.

5. A train is travelling at a speed of 40 km/ h. Brakes are applied so as to produce a uniform acceleration of $-0.5 m/s^2$. Find how far the train will go before it is brought to rest.

6. A Truck covers 90km at a uniform speed of 30km/hr. what should be its speed for the next 120km if the average speed for the entire journey is 60km/h?

7. A stone is thrown in a vertically upward direction with a velocity of 15 m/s. If the acceleration of the stone during its motion is $8m/s^2$ in the downward direction, what will be the height attained by the stone and how much time will it take to reach there?

8. A person goes to market, makes purchases and comes back at a constant slower speed. Draw displacement- time and velocity time graphs of the person?

9. Rahul runs for 8 min. at a uniform speed 5 km/h. At what speed should he run for the next 10 min. so that the average speed becomes 15km/hr?

10. A particle was at rest from 1 a.m. It moved at a uniform speed 40km/hr from 1.30 a.m. to 2:00 a.m. Find the average speed between
   (a) 1.00 a.m. and 2.00 a.m.

## CHEMISTRY

1. Define sublimation.

2. Name any three substance that show sublimation.

3. When Sugar is dissolved in water there is hardly any increase in volume .Which characteristic of matter is illustrated by this observation?

4. Name three states of matter. Which state of matter is rigid why?

5. Give reasons for the following
   (A) Gases fill up the vessel completely in which they are kept.
   (B) Gases exert pressure on the walls of the containing vessel.

6. Give reason for the following :
   (i) A solid does not flow but a liquid flows easily.
   (ii) Ice at 0℃ appears colder than water at the same temperature.
   (iii) Camphor balls are stored in airtight containers.

7. What phenomenon occurs during the following changes?
   (i) Size of naphthalene balls decreases
   (ii) Wax melts in the sun
   (iii) Drying of wet clothes

8. What is the difference between evaporation and boiling?

9. What is meant by particle nature of matter ? List four characteristics of particle nature of matter.

10. Why do we wear cotton clothes in summers?

## BIOLOGY

1. Give two difference between prokaryotic and eukaryotic cell.

2. Why nucleus is called head controller of cell?

3. Draw lebel diagram of nucleus.

4. Who discovered nucleus and nucleolus also give the function of nucleolus?

5. What is the chromatin?

6. What is the active transport give the example?

7. Who give the term protoplasm also define it?

8. What is cell organel give the two example?

9. What happened when cell is kept in isotonic solution?

10. What is plasmodesmata?

## MATH

1. Factorise the expressions by splitting the middle term $x^2 + 9x + 18$

2. Factorise the expressions by splitting the middle term $5\sqrt{5}x^2 + 20x + 3\sqrt{5}$

3. Find possible length and breadth of the rectangle whose area is given by $25a^2 - 35a + 12$.

4. Factorise the cubic $x^3 - 2x^2 - x + 2$.

5. If $(x+4)$ is a factor of the polynomial $x^3 - x^2 - 14x + 24$, find its other factors.

6. Expand using suitable identities
   (i) $(2x+3)^3$        (ii) $(5p-3q)^3$

7. If $a+b+c = 9$ and $ab + bc + ca = 26$ then find $a^2 + b^2 + c^2$.

8. Evaluate each of the following using suitable identities
   (i) $101 \times 99$        (ii) $102 \times 98$

9. Using appropriate identities ,find the following products:
   (i) $(2x+3)(2x+3)$        (ii) $(3x+4)(3x-5)$

10. If $(3x-2)$ is a factor of $3x^3 + x^2 - 20x + 12$, find the other factors.