NEW STANDARD ACADEMY

Marks: 80

Date : 07-07-25 **CLASS : 9TH** **Time: 3 hours.**

PHYSICS

1. Why do you fall in the forward direction when a moving bus brakes to a stop and fall backwards when it accelerates from rest?
2. An object experiences a net zero external unbalanced force. Is it possible for the object to be traveling with a non-zero velocity? If yes, state the conditions that must be placed on the magnitude and direction of the velocity. If no, provide a reason.
3. A truck starts from rest and rolls down a hill with a constant acceleration. It travels a distance of 400 m in 20 s. Find its acceleration. Find the force acting on it if its mass is 7 tonnes (Hint: 1 tonne = 1000 kg.)
4. An object of mass 100 kg is accelerated uniformly from a velocity of 5 m s^{-1} to 8 m s^{-1} in 6 s. Calculate the initial and final momentum of the object. Also, find the magnitude of the force exerted on the object.
5. How much momentum will a dumb-bell of mass 10 kg transfer to the floor if it falls from a height of 80 cm? Take its downward acceleration to be 10 m s^{-2} .
6. What do you mean by impulsive force?
7. When a force acting on a body has an equal & opposite reaction, then why should the body move at all.
8. What is meant by balanced forces?
9. A person is prone to more serious injuries when falling from a certain height on a hard concrete floor than on a sandy surface. Explain why.
10. Write Newton's Laws of Motion.

CHEMISTRY

1. CO_2 is gas justify the given statement by two reasons.
2. When 50g of salt is dissolved in 100mL of water, there is no increase in volume . what characteristic of matter is illustrated by this observation?
3. What is the name of the phenomenon of changing a liquid into its vapours at a temperature below its boiling point temperature?
4. What happens when an inflated air balloon is pricked with a pin?
5. Define the density and write its SI unit.
6. Justify that melting of wax is a physical change.
7. How do aquatic animal breath underwater?
8. Ice is solid at 0°C,while water is liquid at room temperature .Why?
9. What is evaporation ? Why does evaporation cool a liquid?
10. What do you understand by the term 'latent heat of fusion ? How much is latent heat of fusion of ice?

BIOLOGY

1. Give the function of plasma mebrane
2. Draw the label diagram of Golgi body also give the function
3. What is semi autonomous organel explain it
4. What is chromosome give its chemical composition?
5. Give difference between mitosis and meiosis .
6. What is endomembrane system explain with example
7. What is the ATP give its full name and role in cell
8. Give the function of peroxysome
9. What is the active diffusion explain with example
10. Give the four main difference between plant cell and animal cell

MATHS

1. If the remainder on dividing the polynomial $2x^4 - kx^2 + 5x - 3k + 3$ by x + 2 is 4 then the value of k is :
2. Factorise expressions by splitting the middle term: $84 - 2r - 2r^2$.
3. If x-y =1 and $x^2 + y^2 = 41$, then x + y =
4. If a+b+c =0 ,find the value of $\frac{(b+c)^2}{bc} + \frac{(c+a)^2}{ca} + \frac{(a+b)^2}{ab}$.
5. Factorise the using suitable identities: $8x^3 - (2x-y)^3$

6. Locate $\sqrt{26}$ on the number line
7. Find the value of a and b : $\frac{5+\sqrt{3}}{7-4\sqrt{3}} = a + \sqrt{3}b$
8. Convert the $23.\overline{43}$ numbers in the form $\frac{p}{q}$
9. Simplify: $\left(\frac{81}{16}\right)^{-\frac{3}{4}} \times \left[\left(\frac{25}{9}\right)^{-\frac{3}{2}} \div \left(\frac{5}{2}\right)^{-3}\right]$
10. If x = 0 and x = -1 are the zeroes of the polynomial $f(x) = 2x^3 - 3x^2 - ax + b$, find the value of a and b