NEW STANDARD ACADEMY

Marks: 80

Date : 13-07-2026 **CLASS : 9TH** **Time: 3 hours**

PHYSICS

1. The velocity of a body moving in a straight line is increased by applying a constant force F, for some distance in the direction of the motion. Prove that the increase in the kinetic energy of the body is equal to the work done by the force on the body.
2. What is the work to be done to increase the velocity of a car from 30km h^{-1} to 60km h^{-1} if the mass of the car is 1500 kg?
3. A horse and a dog are running with the same speed. If the mass of the horse is ten times that of the dog. what is the ratio of their kinetic energies?
4. A body is moving with a constant velocity of 50 ms^{-1} If its momentum is 150kgm s^{-1} calculate the kinetic energy associated with it.
5. Calculate the kinetic energy of an object of mass 3 kg moving with a velocity of 2m s^{-1}
6. Find the kinetic energy of a ball of mass 300 g moving with a velocity of 20cm s^{-1}
7. Calculate the work done by a bicycle of mass 20 kg. in increasing its speed from 2ms^{-1} to 5m s^{-1}
8. Two balls of same mass are moving with a velocity and 20 respectively. Find out the ratio of their kinetic energies.
9. An object of mass 12 kg is at a certain height above the ground. If the potential energy of the object is 480 J, find the height at which the object is with respect to the ground. (Given. g = 10ms^{-2})
10. An object of mass 25 kg was horizontally moves to 5 m and then it was lifted to height 18 m. It was again moved 10 m horizontally and 2 m vertically upwards. Find the gravitational potential energy possessed by the object. (Take g=9. ms^{-2})

CHEMISTRY

1. Classify each of the following as a physical or a chemical change. Give reasons.
   (a) Drying of a shirt in the sun.
   (b) Rising of hot air over a radiator.
   (c) Burning of kerosene in a lantern.
   (d) Change in the colour of black tea on adding lemon juice to it.
2. Name the process associated with the following:
   (a) Dry ice is kept at room temperature and at one atmospheric pressure.
   (b) A potassium permanganate crystal is in a beaker and water is poured into the beaker with stirring.
3. Suggest separation technique one would need to employ to separate the following mixtures:
   (a) Mercury and water
   (b) Potassium chloride and ammonium chloride
   (c) Common salt, water and sand
   (d) Kerosene oil, water and salt
4. Write four difference between True solution and Colloidal Solution.
5. Define Saturated and Unsaturated Solution.
6. Define Aerosol & Emulsion. Also give Example of each of them.
7. Which of the following are chemical changes?
   (a) Growth of a plant
   (b) Rusting of iron
   (c) Mixing of iron filings and sand
8. Write a Short notes on the following:
   i. Solubility
   ii Homogeneous & Heterogeneous Mixtures
   iii. Metals & non metals
9. Name the process associated with the following:
   (a) An acetone bottle is left open and the bottle becomes empty.

(b) Milk is churned to separate cream from it

10. Which of the following are chemical changes?
    (a) Cooking of food
    (b) Digestion of food
    (c) Burning of a candle.

BIOLOGY

1. Draw lebelled diagram of Neuron?
2. How do dendrites differ anatomically from an axon in terms of shape, length, and the presence of branches?
3. Give difference between striated and non striated mucles
4. What is the structural difference between a myelinated axon and an unmyelinated axon, and how does this affect the physical appearance of nerve tissue?
5. What are Nissl bodies, where are they located within the neuron, and what cellular organelle do they represent?
6. Name the three types of muscle tissues found in the human body and state whether they are voluntary or involuntary.
7. Why are skeletal muscles also called striated muscles?
8. State two unique structural features of cardiac muscle tissue.
9. Where are smooth muscles located in the human body? Mention any two locations.
10. What is the main function of contractile proteins in muscle tissue?

MATHS

1. Write the first 4 terms of the sequences defined by the following explicit rules:
   (i) $a_n = 3n + 2$ (ii) $a_n = n^2 + 1$
2. Find the explicit rule (general term a_n) for the following sequences:
   (i) 3,6,9,12,… (ii) 1,4,9,16,25,...
3. Write first four terms of the A.P., when the first term *a* and the common difference *d* are given as follows:
   (i) - $a = 10$ $d = 10$ (ii) $a = \frac{1}{2}$ $d = -\frac{1}{6}$
4. The 17th term of an A.P exceeds its 10th term by 7. Find the common difference.
5. Determine the A. P. whose 3rd term is 5 and the 7th term is 9.
6. If m times the mth term of an A.P. is equal to n times its nth term, then find its $(m+n)^{th}$ term
7. Which term of the A.P 121, 117, 113, is the first negative term?
8. Find the next term of the list of numbers $\frac{1}{6}$, $\frac{1}{3}$, $\frac{2}{3}$,….
9. Find the value of x such that $-\frac{2}{7}$,x,$-\frac{7}{2}$ are three consecutive terms of a G.P.
10. Split 207 into three parts such that these are in A.P and the product of two smaller part is 4623