

NEW STANDARD ACADEMY

Date : 10-11-25

CLASS : 9TH

Marks: 80
Time: 3 hours.

PHYSICS

1. An electric heater is rated 1500 W. How much energy does it use in 10 hours?
2. Calculate the work done in pushing a cart through a distance of 50 m against the force of friction equal to 1250 N. Also state the type of work done
3. A ball of mass 1.5 kg is moving with a speed of 20 m/s. Find its kinetic energy. If a force changes its speed to 25 m s^{-1} Find the work done by this force.
4. An athlete weighing 54 kg runs up a staircase having 10 steps each of height 0.2 m in 30 s. Calculate power. (Take $g = 9.8 \text{ m s}^{-2}$)
5. Certain force acting on a 20 kg mass changes its velocity from 5 m s^{-1} to 2 m s^{-1} . Calculate the work done by the force.
6. A ball is dropped from a height of 10 m. If the energy of the ball reduces by 40% after striking the ground, how much high can the ball bounce back? ($g = 10 \text{ m s}^{-2}$)
7. An automobile engine propels a 1000 kg car (A) along a levelled road at a speed of 36 km h⁻¹. Find the power if the opposing frictional force is 100 N. Now, suppose after travelling a distance of 200 m, this car collides with another stationary car (B) of same mass and comes to rest. Let its engine also stop at the same time. Now, car (B) starts moving on the same level road without getting its engine started. Find the speed of the car (B) just after the collision.
8. A motor boat moves at a steady speed of 6 m s^{-1} Water resistance acting on it is 500 N. Calculate the power of the engine.
9. A 60 kg man moved 25 steps up in 25 s. Find the power if each step is 16 cm high. The value of $g = 10 \text{ m s}^{-2}$
10. What is sound ? How is it produced? Can it travel through a vacuum?

CHEMISTRY

1. The formula of a carbonate is M_2CO_3 . What is the formula of its bicarbonate and sulphate ?
2. The valency of a metal is 4. What is the formula of its oxide, nitrate?
3. Write the correct formulae of the following: CaCl , NaSO_4 , NaS , $(\text{NH}_4)_2\text{NO}_3$.
4. Write the names of the following compounds:

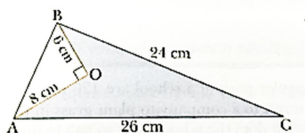
- (a), $\text{Al}_2(\text{SO}_4)_3$ (b) $\text{Mg}(\text{HCO}_3)_2$
(c) Na_3PO_4 (b) AlPO_4
5. The formula of a calcium salt is CaX . What is the formula of its potassium and aluminium salt?
6. What are polyatomic ions? Give Examples
7. Write the formulae of:
(i) Oxide ion (ii) sulphide ion (iii) ammonium ion (iv) nitrate ion.
8. Define 'atomic mass unit'. How is it linked with relative atomic mass?
9. What is the difference between an atom and a molecule?
10. Chemical name of NO is nitrogen monoxide and not nitrogen oxide, why?

BIOLOGY

1. What will happen to a cell placed in hypotonic, hypertonic, and isotonic solutions?
2. How does endocytosis differ from exocytosis?
3. What is passive transport and active transport? Give examples.
4. Explain why protoplasm is considered the basis of life.
5. What is ATP and what is its role?
6. What are cristae and what is their function?
7. How do lysosomes help in maintaining the cleanliness of the cell?
8. Explain the role of lysosomes in cell digestion and defense.
9. What is the centrosome give the function?
10. Give the difference between mitosis and meiosis

MATHS

1. Find the area of the quadrilateral ABCD, in which $\text{AB} = 7\text{cm}$, $\text{BC} = 6\text{cm}$, $\text{CD} = 12\text{cm}$, $\text{DA} = 15\text{cm}$ and $\text{AC} = 9\text{cm}$.
2. Calculate the area of the following shaded region.



3. The sides of a triangle (in cm) are x , $x + 1$, $2x - 1$ and its area (in cm^2) is $x\sqrt{10}$. Find the value of x and the lengths of the sides of the triangle.
4. Find the area of a triangular field whose sides are 275 m, 660 m and 715 m. What is the cost of cultivating the field at the rate of ₹200 per hectare? [Use 1 hectare = 10000 m^2]
5. Asif is building a birdhouse. The roof of the birdhouse is in the form of a right circular cone whose radius is 21 cm and slant height is 47 cm. He plans to paint the roof red, but he needs to know the surface area to buy the right amount of paint. What is the surface area of the roof, including the bottom?
6. The diameter of a sphere is decreased by 25%. By what per cent does its curved surface area decrease?
7. A cloth having an area of 165 m^2 is shaped in the form of a conical tent of radius 5 m.
 - (i) How many students can sit in the tent if a student, on an average, occupies $5/7 \text{m}^2$ area on the ground?
 - (ii) Find the volume of the cone.
8. A dome of a building is in the form of a hemisphere. From inside, it was white washed at a cost of 4989.60Rs. If the cost of white washing is 20 Rs per square metre, find:
 - (i) the inside surface area of the dome.
 - (ii) volume of air inside the dome.
9. Prove that Equal chords of a circle subtend equal angles at the centre.
10. Define the following:
 - (1) Concentric Circles
 - (2) Cyclic Quadrilateral