

NEW STANDARD ACADEMY

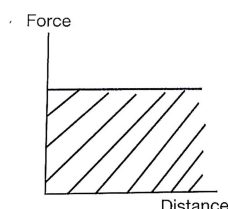
Date : 03-10-25

CLASS : 9TH

Marks: 80
Time: 3 hours.

PHYSICS

1. Define 1 joule of work done. A pair of bullocks exerts a force of 140 N on a plough. The field being ploughed is 15 m long. How much work is done by ploughing the length of the field?
2. Under what conditions can the work done by a force be zero?
3. Which physical quantity is represented by the area under the graph? Name and define the SI unit of that physical quantity.



4. A man lifts 20 boxes each of mass 15 kg to a height of 1.5 m. Find the work done by the man against gravity.
5. A bullet of mass 50 g and moving with a velocity of 500 m/s strikes a tree and goes out from the other side with a velocity of 400 m/s. Calculate the work done by the bullet in joules in passing through the tree.
6. A body whose velocity is 90 km/h has a KE of 25 J. Find its mass.
7. Define Kinetic energy and potential energy also write their mathematical expressions .
8. What is Power ? Write it's SI Unit . 1 Horse Power is equivalent to how many watts?
9. A 300 kg truck moving at a speed of 90 m/sec stops after covering some distance. The force applied by brakes is 27000 N. Compute the distance covered and work done by this force.
10. What is the work energy theorem? Write its mathematical expression .

CHEMISTRY

1. Explain with examples the difference in molecule of an element and the molecule of a compound.
2. What do the following abbreviations describe?
(i) H (ii) 2H (iii) H₂ (iv) 2H₂
3. What is the significance of the molecular formula CO₂?
4. An element X has valency of 4 while the valency of element Y is one. What is the formula of the molecule formed between X and Y?
5. Calculate the molar mass of the following substances:
(a) Ethyne (C₂H₂) (b) Sulphur molecule (S₈)
(c) Phosphorus molecule (P₄)
(d) Hydrogen chloride (HCl)
(e) Nitric acid (HNO₃)
6. Write the chemical formulae of (i) calcium oxide, (ii) copper (II) nitrate, (iii) calcium carbonate, (iv) sodium carbonate.
7. The chemical formula of a metal carbonate is MCO₃. What is the formula of its chloride and sulphate?
8. What is the valency of nitrite, hydrogen carbonate and fluoride ion ?
9. Why does the term molecular mass not use for the molar mass of ionic compounds?
10. What is the difference between sodium atom and sodium ion?

BIOLOGY

1. What is the function of phloem in plants? Name its four elements.
2. Write two structural differences between striated and smooth muscles.

3. What is the function of cardiac muscle? How is it different from other muscle tissues?
4. Define connective tissue. Name any four connective tissues found in animals.
5. What is the role of nervous tissue? Draw a well-labeled diagram of a neuron.
6. What is cork? How does it protect the plant body?
7. How does nervous tissue help in the coordination and control of body activities?
8. Write a short note on bone and cartilage include structure, function, and difference.
9. Explain how areolar connective tissue helps in joining different organs together.
10. Explain the structure and function of xylem and phloem in plants.

MATHS

1. A right circular cone is 5.4 cm high and radius of its base is 2 cm. It is melted and recast into another right circular cone with radius of base as 1.5 cm. Find the height of the new cone. Prove that both the cones have equal volume.
2. A cube of side 4 cm contains a sphere touching its sides. Find the volume of the gap in between.
3. The diameter of a metallic ball is 4.2 cm. What is the mass of the ball, if the density of the metal is 7.5 g per cm^3 ?
4. How many litres of milk can a hemispherical bowl of diameter 10.5 cm hold?
5. If a diameter of a sphere is increased by 20%, then its radius increases by:
6. A metallic sphere of radius 10.5 cm is melted and thus recast into small cones, each of radius 3.5 cm and height 3 cm. Find how many cones are obtained?
7. The rain water from a roof $22 \text{ m} \times 20 \text{ m}$ drains into a conical vessel having diameter of base as 2 m and height 3.5 m.

If the vessel is just full, find the rainfall in cm.

8. The volume of a right circular cone is 9856 cm^3 and the area of its base is 616 cm^2 . Find
 - (i) the slant height of the cone.
 - (ii) total surface area of the cone.
9. How many square metres of canvas is required for a conical tent whose height is 3.5 m and the radius of the base is 12 m?
10. The radius and height of a right circular cone are in the ratio 4: 3. If the area of the base of the cone is 154 cm^2 , find its curved surface area.