

SEMESTER-ONE

PHYSICS

Class X

Sample Paper—1

Max. Marks: 50

Time Allowed: 90 minutes

General Instructions:

- (i) This question paper consists of 40 questions in 4 sections.
- (ii) All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
- (iii) Section A consists of 10 Objective type questions carrying 1 mark each.
- (iv) Section B consists of 10 Fill in the blanks type questions carrying 1 mark each.
- (v) Section C consists of 10 True or False statement type questions carrying 1 mark each.
- (vi) Section D consists of 10 Short answer and Numerical type questions carrying 2 marks each.

Section A

Select and write one most appropriate option out of the four options given for each of the questions 1 – 10.

1. Which of the following branch of Physics is related to the study of sound and waves?
 - (a) Mechanics
 - (b) Acoustics
 - (c) Astrophysics
 - (d) Space Physics
2. Motion in a straight line is known as _____.
 - (a) Rectilinear motion
 - (b) Periodic motion
 - (c) Circular motion
 - (d) None of the above
3. A wedge may be used to _____.
 - (a) split a plank
 - (b) lift a plank

- (c) balance a plank (d) join two planks
4. The SI unit of length is
(a) Centimetre (b) metre
(c) kilometre (d) Foot
5. When a force of 1 N acts on a mass of 1 kg that is free to move, the object moves with
(a) a speed of 1 m/s (b) a speed of 1 km/s
(c) an acceleration 10 m/s^2 (d) an acceleration of 1 m/s^2
6. The _____ is the main source of energy on planet Earth.
(a) wind (b) moon
(c) fire (d) sun
7. Which of the following instrument is appropriate for measuring short time intervals
(a) Analog clock (b) Pendulum clock
(c) Stopwatch (d) None of these
8. The mass and volume of a body are 4.237 g and 2.5 cm^3 , respectively. The density of the material of the body in correct significant figures is
(a) 1.6048 g cm^{-3} (b) 1.69 g cm^{-3}
(c) 1.7 g cm^{-3} (d) 1.695 g cm^{-3}
9. Inertia is _____.
(a) a property of matter (b) a type of force
(c) the speed of an object (d) none of these
10. According to the equation of work, when a boy sits in one place and studies for the whole night, he does _____.
(a) very little work (b) too much work
(c) lot of work (d) no work

Section B

Fill in the blanks with a suitable word for each of the questions 11 – 20.

11. In a lever of third order, _____ is in the middle.
12. _____ is the study of space which has lead to innovations.
13. The dimension formula of force is _____ .
14. The ratio of the density of a substance to the density of water at 4°C is called _____ .
15. In a velocity-time graph, uniform acceleration is represented by a _____ line inclined to x-axis (time axis).

16. The quantities which are derived from fundamental quantities are called _____ .
17. When energy is transferred in a system, the total amount of energy before the transfer is _____ after the transformation is complete, just in different forms.
18. The momentum of an object is defined as the product of _____ and _____.
19. _____ is a device which is used to transmit force to change the direction of force or to obtain gain in speed.
20. The speed at any given instant of time is known as _____ speed.

Section C

State whether the following statements are true or false for each of the questions 21–30.

21. Centimeter is SI unit of length.
22. In the case of non-uniformly accelerated motion, velocity-time graphs can have any shape.
23. Screw gauge is usually able to measure length accurately up to 0.1 mm.
24. $0.0000095 = 9.5 \times 10^{-6}$
25. An unbalanced force acting on an object brings it in motion.
26. All objects fall from a height at different rate.
27. Mercury and alcohol are the liquids used in most liquid in glass thermometers.
28. The distance between two successive threads is called the pitch of the screw.
29. Power is defined as the ability to do work.
30. The ratio of the load moved by a simple machine to the effort applied on it is called mechanical advantage.

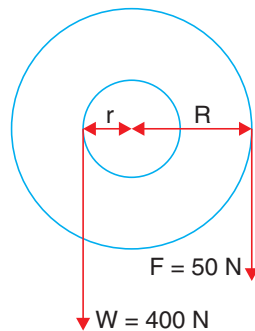
Section D

Answer each of the questions 31 – 40.

31. Explain the basic fundamental physical quantities.

or

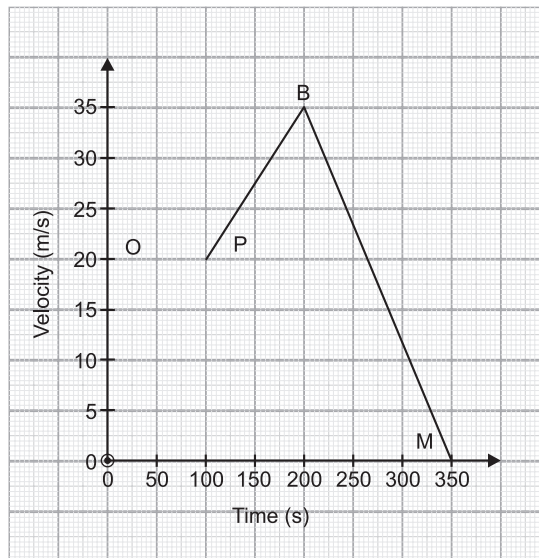
What is dimensional analysis? Write the dimensional formula of density.



or

The velocity-time graph represents the motion of an object for 350 s.

- Calculate the acceleration for the time interval $100 \text{ s} < t < 200 \text{ s}$
- Calculate the displacement of the object in 0 to 350 s.
- Which type of motion is represented by BM in the velocity-time graph?



- Distinguish between instantaneous speed and average speed.
- Relative density of gold is 19.3. The density of water is 1000 kg/m^3 . What is the density of gold in SI units?
- An object of mass 40 kg is raised to a height of 5 m above the ground. What is its potential energy? If the object is allowed to fall, find its kinetic energy when it is half-way down.
- Describe Newton's law of universal gravitation.
- Find the value of 60 joule/minute on a system which has 100 g, 100 cm and 1 min as fundamental units.