

**Sample question paper**

**Class- 11 (physics)**

**Section A**

**Maximum marks 35**

**Duration :90 min.**

Attempt any 20 questions.

1.

A force  $F$  is given by  $F = at + bt^2$ , where  $t$  is time. What are the dimensions of  $a$  and  $b$ ?

- (a)  $MLT^{-1}$  and  $MLT^0$  (b)  $MLT^{-3}$  and  $ML^2T^4$  (c)  $MLT^{-4}$  and  $MLT^1$  (d)  $MLT^{-3}$  and  $MLT^{-4}$

2.

The atmospheric pressure is  $106 \text{ dyne/cm}^2$ . What is its value in SI unit?

- (a)  $105 \text{ newton/m}^2$  (b)  $106 \text{ newton/m}^2$  (c)  $104 \text{ newton/m}^2$  (d)  $103 \text{ newton/m}^2$

3.

In a system of units if force ( $F$ ), acceleration ( $A$ ) and time ( $T$ ) are taken as fundamental units then the dimensional formula of energy is

- (a)  $FA^2T$  (b)  $FAT^2$  (c)  $FA^2T$  (d)  $FAT$

4.

The dimensions of kinetic energy is same as that of

- (a) force (b) pressure (c) work (d) momentum

5.

Which of the following groups have different dimensions?

- (a) Potential difference, EMF, voltage  
(b) Pressure, stress, Young's modulus  
(c) Heat, energy, work done  
(d) Dipole moment, electric flux, electric field

6.

$ML^{-1}T^{-2}$  is the dimensional formula of

- (a) magnetic induction  
(b) self-inductance  
(c) electric potential  
(d) electric field

7.

What is the dimensional formula of magnetic field?

- (a)  $MT^{-2}A^{-1}$  (b)  $MT^{-1}A^{-2}$  (c)  $M^{-1}L^{-2}TA^{-1}$  (d)  $M^{-1}LTA^{-2}$

8.

Electron volt is a unit of

- (a) charge  
(b) potential difference  
(c) energy  
(d) magnetic force

9.

In SI system the fundamental units are

- (a) meter, kilogram, second, ampere, Kelvin, mole and candela  
(b) meter, kilogram, second, coulomb, Kelvin, mole and candela  
(c) meter, Newton, second, ampere, Kelvin, mole and candela

(d) meter, kilogram, second, ampere, Kelvin, mole and lux  
10.

Light year is a unit of

- (a) time
- (b) distance
- (c) sunlight intensity
- (d) mass

11.

Which of the following is not the name of physical quantity?

- (a) Kilogram
- (b) Density
- (c) Impulse
- (d) Energy

12.

If the unit of force and length are doubled, the unit of energy will be

- (a)  $1/2$  times
- (b) 2 times
- (c) 4 times
- (d)  $1/4$  times

13.

Which of the following have the same dimensions as  $v^2r$  Where  $v$  is the speed of the particle describing a circular path of radius  $r$ .

- (a) Force
- (b) Impulse
- (c) Acceleration
- (d) Momentum

14.

The weight of a body is 12g. This statement is not correct because:

- (a) the correct symbol for the unit of weight has not been used
- (b) the correct symbol for gram is gm.
- (c) the weight should be expressed in kg.
- (d) None of the above

15.

Give that the displacement of a particle is given by  $x = A^2 \sin^2 kt$ , where  $t$  denotes the time. The unit of  $k$  is

- (a) radian
- (b) metre
- (c) hertz
- (d) second

16.

Which of the following physical quantity is dimensionless?

- (a) angle
- (b) specific gravity
- (c) strain

(d) all of these

17.

The volume of a cube in  $\text{m}^3$  is equal to the surface area of the cube in  $\text{m}^2$ . The volume of the cube is

(a)  $64 \text{ m}^3$

(b)  $216 \text{ m}^3$

(c)  $512 \text{ m}^3$

(d)  $196 \text{ m}^3$

18.

Absolute error of the measurement is

(a) the difference between the individual measurement and the true value of the quantity cubed.

(b) the difference between the individual measurement and the true value of the quantity squared.

(c) the difference between two individual measurements and their mean

(d) the difference between the individual measurement and the true value of the quantity

19.

What is the number of significant figures in  $(3.20 + 4.80) \times 10^5$ ?

(a) 2

(b) 3

(c) 4

(d) 5

20.

Which of the following numerical values has three significant figures?

(a) 5.055

(b) 0.050

(c) 50.50

(d) 0.500

21.

The word Science originates from the Latin verb Scientia meaning

(a) to know

(b) to see

(c) to experience

(d) to observe

22.

Physics is a

(a) Applied Science

(b) Mathematical Science

(c) Engineering Science

(d) Natural Science

23.

A body starts from rest and travels with uniform acceleration on a straight line. If its velocity after making a displacement of 32 m is 8 m/s, its acceleration is

(a)  $1 \text{ m/s}^2$

(b)  $2 \text{ m/s}^2$

(c)  $3 \text{ m/s}^2$

(d)  $4 \text{ m/s}^2$

24.

A body starts from rest and travels for  $t$  second with uniform acceleration of  $2 \text{ m/s}^2$ . If the displacement made by it is  $16 \text{ m}$ , the time of travel  $t$  is

(a)  $4 \text{ s}$

(b)  $3 \text{ s}$

(c)  $6 \text{ s}$

(d)  $8 \text{ s}$

25.

When a body is dropped from a tower, then there is an increase in its

(a) mass

(b) velocity

(c) acceleration

(d) potential energy

### **Section B**

Attempt any 20 questions.

26.

The total vertical distance covered by a freely falling body in a given time is directly proportional to

(a) time

(b) square of time

(c) square of acceleration due to gravity

(d) product of the time and acceleration due to gravity

27.

A stone is thrown upward and it rises to a height of  $100 \text{ m}$ . The relative velocity of the stone w.r.t. the Earth will be maximum at:

(a) the ground

(b) a height of  $50 \text{ m}$

(c) a height of  $5 \text{ m}$

(d) the highest point

28.

The displacement-time graph of a moving object is a straight line. Then,

(a) its acceleration may be uniform

(b) its velocity may be uniform

(c) its acceleration may be variable

(d) both its velocity and acceleration may be uniform

29.

The distance travelled by an object is directly proportional to the time taken. Its speed

(a) increases

(b) decreases

(c) becomes zero

(d) remains constant

30. The dimensions of kinetic energy is same as that of

- (a) force (b) pressure (c) work (d) momentum

31. Which of the following pairs has the same dimensions?

- (a) specific heat and latent heat (b) Impulse and momentum  
(c) surface tension and force (d) moment of Inertia and torque

**32. The base quantity among the following is**

- (a) Speed (b) Weight (c) Length (d) Area

**33. The relative error in the measurement of the side of a cube is 0.027.**

**The relative error in the measurement of its volume is**

- (a) 0.027 (b) 0.054 (c) 0.081 (d) 0.046

**34. A packet contains silver powder of mass  $20.23 \text{ g} \pm 0.01 \text{ g}$ . Some of the powder of mass  $5.75 \text{ g} \pm 0.01 \text{ g}$  is**

**taken out from it. The mass of the powder left back is**

- (a)  $14.48 \text{ g} \pm 0.00 \text{ g}$  (b)  $14.48 \pm 0.02 \text{ g}$  (c)  $14.5 \text{ g} \pm 0.1 \text{ g}$  (d)  $14.5 \text{ g} \pm 0.2 \text{ g}$

**35. We can reduce random errors by**

- (a) Taking large number of observations (b) Corrected zero error  
(c) By following proper technique of experiment (d) Both (1) & (3)

36. The displacement-time graph of a moving object is a straight line. Then,

- (a) its acceleration may be uniform (b) its velocity may be uniform  
(c) its acceleration may be variable (d) both its velocity and acceleration may be uniform

37. If the displacement of an object is zero, then what can we say about its distance covered?

- (a) It is negative (b) It must be zero  
(c) It cannot be zero (d) It may or may not be zero

38. Which of the following changes when a particle is moving with uniform velocity?

- (a) Speed (b) Velocity (c) Acceleration (d) Position vector

**39. The displacement of a particle is represented by the following equation:  $S = 3t^3 + 7t^2 + 5t + 8$  where 5 is in meter and t in second. The acceleration of the particle at  $t = 15$  is**

- (a)  $14 \text{ m/s}^2$  (b)  $18 \text{ m/s}^2$  (c)  $32 \text{ m/s}^2$  (d) zero

**40. A particle moves from (2,3) m to (4,1) m. The magnitude of displacement is**

- (a) 2 m (b)  $2\sqrt{3} \text{ m}$  (c)  $2\sqrt{2} \text{ m}$  (d)  $3\sqrt{2} \text{ m}$

**41. What determines the nature of the path followed by the particle?**

- (a) Speed (b) Velocity (c) Acceleration (d) Both (b) and (c)

**42. The graph between displacement and time for a particle moving with uniform acceleration is a/an**

- (a) straight line with a positive slope (b) parabola  
(c) ellipse (d) straight line parallel to time axis

**43. Acceleration of a particle changes when**

- (a) direction of velocity changes (b) magnitude of velocity changes  
(c) speed changes (d) Both (a) and (b)

**44. If a body travels with constant acceleration, which of the following quantities remains constant ?**

- (a) Displacement (b) Velocity (c) Time (d) None of these

**45.If a car at rest accelerates uniformly to a speed of 144 km/h in 20 s, it covers a distance of**

- (a) 2880 m(b) 1440 m(c) 400 m(d) 20 m

**46.An object accelerated downward under the influence of force of gravity. The motion of object is said to be**

- (a) uniform motion(b) free fall  
(c) non uniformly accelerated motion(d) None of these

**47.Two cars A and B approach each other at the same speed, then what will be the velocity of A if velocity of B is 8 m/s?**

- (a) 16 m/s(b) 8 m/s(c) – 8 m/s(d) Can't be determined.

**48.The height of tower when stone dropped from it reaches ground in 5 s is**

- (a)130 m (b)125 m (c)150 m (d)200 m

**49.Unit of torque**

- (a)Newton.meter (b)Newton (c)Newton/meter (d)none of these

### **Section C**

**Attempt any 5 questions.**

**Directions :** Each of these questions contain two statements, Assertion and Reason. Each of these questions also has four alternative choices, only one of which is the correct answer. You have to select one of the codes (a), (b), (c) and (d) given below.

- (a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.  
(b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion  
(c) Assertion is correct, reason is incorrect  
(d) Assertion is incorrect, reason is correct.

**50. Assertion :** Dimensional constants are the quantities whose values are constant.

**Reason :** Dimensional constants are dimensionless.

**51. Assertion :** When we change the unit of measurement of a quantity, its numerical value changes.

**Reason :** Smaller the unit of measurement smaller is its numerical value.

**Read carefully this paragraph and give answer of following questions.**

The acceleration of an object is the change in its velocity in each unit of time. In case the change in velocity in each unit of time is constant, the object is said to be moving with constant acceleration and such a motion is called uniformly acceleration motion. On the other hand, if the change in velocity in each unit of time is not constant, the object is said to be moving with variable acceleration and such a motion is called non-uniformly accelerated motion.

**52.The rate of change of velocity with respect to the time is called**

- (a) speed  
(b) displacement  
(c) acceleration  
(d) non of these

**53.If time taken by an object to cover equal distance is different the acceleration is**

- (a) uniform  
(b) non uniform  
(c) both a and b

(d) non of these

54.If the velocity of an object decreasing with time then acceleration is called

(a) positive acceleration

(b) negative acceleration

(c) can not anything

(d) may be positive or negative

55.If an object move with constant velocity then it's acceleration is

(a) uniform acceleration

(b) non-uniform acceleration

(c) zero

(d) non of these

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#### Class 11th physics syllabus for Term 1

Chapter 1 Physical World.

Chapter 2 Units and Measurement.

Chapter 3 Motion in a Straight line.

Chapter 6 Work, Energy and Power. (optional)