Physical quantities are

**quantities such as degrees, radians and steradians**

quantities such as length, mass, time, electric current, thermodynamic temperature, amount of substance, and luminous intensity

quantities such as pounds, dollars and rupees

quantities such as kilos, pounds and gallons

Which of the following pairs has the same dimensions?

specific heat and latent heat

**lmpulse and momentum**

surface tension and force

moment of lnertia and torque

The dimensions of kinetic energy is

[M2L2T]

**[ML2T]**

[ML2T-2]

[ML2T-1]

A force F is given by F = at + bt², where t is time. What are the dimensions of a and b?

[ MLT-1] and [MLT0]

[MLT-3] and [ML2T4]

**[MLT-4] and [MLT1]**

[MLT-3] and [MLT-4]

The atmospheric pressure is 106 dyne/cm². What is its value in SI unit?

105 newton/m²

106 newton/m²

**104 newton/m²**

103 newton/m²

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

[FA2T]

**[FAT2]**

[FA2T]

[FAT]

If force (**F**), work (**W**) and velocity (**v**) are taken as fundamental quantities. What is the dimensional formula of time (**T**)?

[WFv]

[WFv-1]

**[W-1F-1v]**

[WF-1v-1]

The dimensions of kinetic energy is same as that of

force

**pressure**

work

momentum

Which of the following groups have different dimensions?

Potential difference, EMF, voltage

**Pressure, stress, Youngs modulus**

Heat, energy, work done

Dipole moment, electric flux, electric field

10. [ML-1T-2] is the dimensional formula of

**magnetic induction**

self-inductance

electric potential

electric field

11. What is the dimensional formula of magnetic field?

[MT-2A-1]

[MT-1A-2]

**[M-1L-2TA-1]**

[M-1LTA-2]

12. Electron volt is a unit of

charge

**potential difference**

energy

magnetic force

13. The volume of a cube in m³ is equal to the surface area of the cube in m². The volume of the cube is

**64 m³**

216 m³

512 m³

196 m³

14. In SI system the fundamental units are

meter, kilogram, second, ampere, Kelvin, mole and candela

**meter, kilogram, second, coulomb, Kelvin, mole and candela**

meter, Newton, second, ampere, Kelvin, mole and candela

meter, kilogram, second, ampere, Kelvin, mole and lux

15. Which one of the following represents the correct dimensions of the coefficient of viscosity?

[ML-1T-2]

[MLT-1]

**[ML-1T-1]**

[ML-2T-2]

16. A particle starting from the origin (0, 0) moves in a straight line in the (**x,** y) plane. Its coordinates at a later time are the path of the particle makes with the x-axis an angle of

**300**

450

600

0

17. Resolution is

**a measure of the bias in the instrument**

None of these

the smallest amount of input signal change that the instrument can detect reliably

a measure of the systematic errors

18. Absolute error of the measurement is

**the difference between the individual measurement and the true value of the quantity cubed.**

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

the difference between two individual measurements and their mean

the difference between the individual measurement and the true value of the quantity

19. Which of the following units denotes the dimensions [ML2/Q2], where Q represents the electric charge?

Wb/m²

Henry(H)

H/m²

**Weber(Wb)**

20. Light year is a unit of

time

**distance**

sunlight intensity

mass

21. If is the angle between two vectors, then the resultant vector is maximum, when value of is

0°

**180°**

90°

Same in all cases

22. Which of the following conditions are sufficient and essential for a quantity to be a vector?

Magnitude, direction, and addition, subtraction multiplication and division by vector laws

Magnitude, direction and combination of vectors by ordinary rules of algebra

Magnitude and addition, subtraction, multiplication by ordinary rules of algebra

**Magnitude and direction**

23. The displacement in meters of a body varies with time t in second as y = t2 – t – 2. The displacement is zero for a positive of t equal to

1 s

2 s

**3 s**

4 s

24. A boy starts from a point A, travels to a point B at a distance of 3 km from A and returns to A. If he takes two hours to do so, his speed is

3 km/h

zero

**2 km/h**

1.5 km/h

25. A 180 metre long train is moving due north at a speed of 25 m/s. A small bird is flying due south, a little above the train, with a speed of 5 m/s. The time taken by the bird to cross the train is

10 s

**12 s**

9 s

6 s

26. A boy starts from a point A, travels to a point B at a distance of 1.5 km and returns to A. If he takes one hour to do so, his average velocity is

3 km/h

zero

**1.5 km/h**

2 km/h

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

1 m/s²

2 m/s²

**3 m/s²**

4 m/s²

28. Which one of the following is the unit of velocity?

kilogram

metre

**m/s**

second

29. A body starts from rest and travels for t second with uniform acceleration of 2 m/s². If the displacement made by it is 16 m, the time of travel t is

4 s

3 s

6 s

**8 s**

30. A body starts from rest and travels with an acceleration of 2 m/s². After t seconds its velocity is 10 m/s . Then t is

10 s

5 s

**20 s**

6 s

31. A boy starts from a point A, travels to a point B at a distance of 1.5 km and returns to A. If he takes one hour to do so, his average velocity is

3 km/h

zero

**1.5 km/h**

2 km/h

32. A body starts from rest. If it travels with an acceleration of 2 m/s², its displacement at the end of 3 seconds is

9 m

12 m

**16 m**

10 m

33. A body starts from rest and travels with uniform acceleration of 2 m/s². If its velocity is v after making a displacement of 9 m, then v is

8 m/s

6 m/s

**10 m/s**

4 m/s

34. A body starts from rest and travels with an acceleration of 2 m/s². After t seconds its velocity is 10 m/s. Then t is

**10 s**

5 s

20 s

6 s

35. A body starts from rest and travels for five seconds to make a displacement of 25 m if it has travelled the distance with uniform acceleration a then a is

3 m/s

4 m/s

2 m/s

**1 m/s**

36. A boy moves on a circular distance of radius R. Starting from a point A he moves to a point B which is on the other end of the diameter AB. The ratio of the distance travelled to the displacement made by him is

pi/2

pi

**2\pi**

4pi

37. The dimensional formula for acceleration is

[LT2]

[LT-2]

[L2T]

**[L2T2]**

38. A body starts from rest and travels with uniform acceleration ‘a’ to make a displacement of 6 m. If its velocity after making the displacement is 6 m/s, then its uniform acceleration a is

6 m/s²

2 m/s²

3 m/s²

**4 m/s²**

39. Which one of the following is the unit of velocity?

**kilogram**

metre

m/s

second

40. The mass of a body which is equal to the ratio of the force acting on a body to the acceleration produced in the body is

the gravitational mass

the electromagnetic mass

**the internal mass**

the inertial mass

41. A spherical ball of mass 10-6 kg hits a wall 1000 times per second normally with a velocity of 1000 m/s and rebounds with same velocity along the initial direction. The force experienced by the wall is

1 N

4 N

**2 N**

8 N

42. The force required to produce an acceleration of 2 m/s² on a mass of 2 kg is

4 N

**10 N**

22 N

18 N

43. A machine gun fires a bullet of mass 40 g with a velocity of 1200 ms-1. The man holding it can exert a maximum force on 144 N on the gum. How many bullets can he fire per second at the most?

**one**

four

two

three

44. A passenger in a moving bus is thrown forward when the bus is suddenly stopped. This is explained

**by Newtons first law**

by Newtons second law

by Newtons third law

by the principle of conservation of momentum

45. A passenger sitting in a bus moving at uniform speed, feels pushed backward whenever the bus is accelerated forward. This type of force is called

**Gravitational force**

real force

fictitious force or pseudo force

frictional force

46. A body of mass 5 kg is travelling with a uniform velocity of 2 m/s. Its momentum is

**10 kg m/s**

7 kg m/s

2 .5 kg m/s

3 kg m/s

47. Inside the nucleus, two protons are held together by a force which overcomes the repulsion. This force is called

**gravitational force**

electrostatic force

weak force

strong force

48. A block of wood is placed on a surface. A force is applied parallel to the surface to move the body. The frictional force developed acts

**normal to the surface upwards**

normal to the surface downwards

along the direction of the applied force

opposite to the direction of the applied force

49. A bullet of mass 25 g moving with a velocity of 200 cm/s is stopped within 5 cm of the target. The average resistance offered by the target is

1 N

**2 N**

3 N

4 N

50. The mass of a body is 2 kg. It weight is

19.6 N

**20 N**

30 N

40 N