tesst56

# Question 1

Which of the following physical quantity is dimensionless?

1. Angle
2. Strain
3. Specific gravity
4. All of these

# Question 2

Express the formula of gravitational constant in terms of mass, velocity, and wavelength?

# Question 3

A physical quantity Q is found to depend on observables and , obeying relation The percentage error in the measurements of and are and respectively. What is percentage error in the quantity Q will be:

1. 9
2. 10
3. 11
4. 12

# Question 4

An Odometer is an instrument used to measure \_\_\_\_\_\_\_\_ in automobiles.

1. speed
2. odour
3. direction
4. distance

# Question 5

In a pendulum, the time period is measured by accuracy and length are measured by accuracy. Find the percentage accuracy in the value of .

# Question 6

The quantity that does not have mass in its dimension is:

1. Electrical potential
2. Electrical resistance
3. Specific heat
4. Magnetic flux

# Question 7

If denotes angular momentum and denotes linear momentum, the dimensions of is:

# Question 8

The unit of momentum is:

# Question 9

Which of following is the dimensional formula of Density?

# Question 10

Which of the physics quantity has the same unit in both C.G.S and M.K.S system?

1. Velocity
2. Distance
3. Time
4. Mass

# Question 11

If , where is in meters and is in second. What is the unit of and ?

1. ,
2. ,
3. ,
4. ,

# Question 12

Which one of the following is not a derived unit?

1. Joule
2. Watt
3. Newton
4. Kilogram

# Question 13

Which of the following pair of physical quantities does not have the same dimensions?

1. Electric flux, Electric dipole moment
2. Pressure, young’s modulus
3. Electromotive force, Potential difference
4. Heat, Potential energy

# Question 14

Which of the following quantity has dimensional formula as that of is:

1. Force
2. Power
3. Pressure
4. Acceleration

# Question 15

The dimensions of ’resistance’ are same as those of \_\_\_\_\_\_\_\_\_\_ where is the Planck’s constant.

# Question 16

The speed of a wave produced in water is given by . Where and are wavelength of wave, acceleration due to gravity and density of water respectively. The values of and respectively, are:

# Question 17

An expression for a dimensionless quantity is given by ; where and are constants, is distance ; is Boltzmann constant and is the temperature. Then the dimensions of will be:

# Question 18

The SI unit of a physical quantity is pascal-second. The dimensional formula of this quantity will be:

# Question 19

In Vander Waals equation ; is pressure, is volume, is universal gas constant and is  temperature. The ratio of constants is dimensionally equal to:

# Question 20

The pitch of the screw gauge is 1 mm and there are 100 divisions on the circular scale. When nothing is put in between the jaws, the zero of the circular scale lies 8 divisions below the reference line. When a wire is placed between the jaws, the first linear scale division is clearly visible while 72 nd division on circular scale coincides with the reference line. The radius of the wire is:

# Question 21

The entropy of any system is given by where and beta are the constants. and are no. of moles, mechanical equivalent of heat, Boltzmann constant and gas constant respectively. Take Choose the incorrect option from the following:

1. and have the same dimensions.
2. and have the same dimensions.
3. and have different dimensions.
4. and have the same dimensions.

# Question 22

Dimensional formula for thermal conductivity is (here denotes the temperature:

# Question 23

A screw gauge has 50 divisions on its circular scale. The circular scale is 4 units ahead of the pitch scale marking, prior to use. Upon one complete rotation of the circular scale, a displacement of is noticed on the pitch scale. The nature of zero error involved, and the least count of the screw gauge, are respectively:

1. Negative, 2 mm
2. Positive, 10 mm
3. Positive, 0.1 mm
4. Negative, 0.1 mm

# Question 24

A physical quantity depends on four observables and , as . The percentages of error in the measurement of and are and respectively. The percentage of error in is:

# Question 25

The least count of the main scale of a vernier callipers is . Its vernier scale is divided into 10 divisions and coincide with 9 divisions of the main scale. When jaws are touching each other, the 7th division of vernier scale coincides with a division of main scale and the zero of vernier scale is lying right side of the zero of main scale. When this vernier is used to measure length of a cylinder the zero of the vernier scale between and and 4 th VSD coincides with a main scale division. The length of the cylinder is : (VSD is vernier scale division)

# Question 26

Using screw gauge of pitch 0.1 cm and 50 divisions on its circular scale, the thickness of an object is measured. It should correctly be recorded as:

1. 2.121 cm
2. 2.124 cm
3. 2.125 cm
4. 2.123 cm

# Question 27

A simple pendulum is being used to determine the value of gravitational acceleration at a certain place. The length of the pendulum is and a stop watch with resolution measures the time taken for 40 oscillations to be . The accuracy in is:

# Question 28

The force of interaction between two atoms is given by ; where is the distance, is the Boltzmann constant and is temperature and alpha and are two constants. The dimensions of beta is:

# Question 29

A student measuring the diameter of a pencil of circular cross-section with the help of a vernier scale records the following four readings 5.50 mm , 5.55 mm , 5.45 mm, 5.65 mm, The average of these four reading is 5.5375 mm and the standard deviation of the data is 0.07395 mm. The average diameter of the pencil should therefore be recorded as:

# Question 30

From the following combinations of physical constants (expressed through their usual symbols) the only combination, that would have the same value in different systems of units, is:

1. mass of electron

# Question 31

divisions on the main scale of a vernier calliper coincide with divisions of the vernier scale. If each division of main scale is ’a’ units, then the least count of the instrument is:

# Question 32

Identify the physical quantity that cannot be measured using spherometer : <ul class="Ts\_solution\_list ng-scope" dir="ltr" ng-if="show\_single\_data[10] == 1 || show\_single\_data[10] == 3"></ul>

1. Radius of curvature of concave surface
2. Specific rotation of liquids
3. Thickness of thin plates
4. Radius of curvature of convex surface

# Question 33

If 50 Vernier divisions are equal to 49 main scale divisions of a travelling microscope and one smallest reading of main scale is 0.5mm, the Vernier constant of travelling microscope is:

1. 0.1mm
2. 0.1cm
3. 0.01cm
4. 0.01mm

# Question 34

The measured value of the length of a simple pendulum is 20cm with 2mm accuracy. The time for 50 oscillations was measured to be 40 seconds with 1 second resolution. From these measurements, the accuracy in the measurement of acceleration due to gravity is N

1. 4
2. 8
3. 6
4. 5

# Question 35

10 divisions on the main scale of a Vernier calliper coincide with 11 divisions on the Vernier scale. If each division on the main scale is of 5 units, the least count of the instrument is :