PHY 233

# Question 1

The magnitude of the difference between the individual measurement and true value of the quantity is called:

1. Absolute error
2. Relative error
3. Percentage error
4. None of these

# Question 2

Which of the following pairs has the same dimensions?

1. Specific heat and latent heat
2. Impulse and momentum
3. Surface tension and force
4. Moment of Inertia and torque

# Question 3

If the fundamental quantities are energy , velocity and force , then what will the dimensions of mass?

# Question 4

Which of the following units denotes the dimensions , where denotes the electric charge?

1. Henry (H)
2. Weber (Wb)

# Question 5

The dimensional formula of Planck’s constant is:

# Question 6

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

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

# Question 7

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 8

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

# Question 9

The unit of momentum is:

# 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

The square root of the product of inductance and capacitance has the dimension of length:

1. Mass
2. Length
3. Time
4. No dimension

# 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

A wattmeter reads . The absolute error in measurement is . What is the true value of power:

# Question 15

Dimensional formula of in equation is:

# Question 16

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

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

# Question 17

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

# Question 18

Given below are two statements: Statement I : Astronomical unit , Parsec and Light year are units for measuring astronomical distances. Statement II : Parsec In the light of the above statements, choose the most appropriate answer from the options given below:

1. Both Statements I and Statements II are incorrect
2. Statements I is correct but Statements II is incorrect
3. Both Statements I and Statements II are correct
4. Statements I is incorrect but Statements II is correct

# Question 19

Identify the pair of physical quantities which have different dimensions:

1. Wave number and Rydberg’s constant
2. Stress and Coefficient of elasticity
3. Coercivity and Magnetisation
4. Specific heat capacity and Latent heat

# Question 20

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 21

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

# Question 22

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

# Question 23

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 24

One main scale division of a vernier callipers is and th division of the vernier scale coincide with th division of the main scale. The least count of the callipers (in ) is:

# Question 25

If and denote the quantities as energy, angular momentum, mass and constant of gravitation respectively, then the dimension of in the formula is:

# Question 26

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 27

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 28

Given below are two statements: one is labelled as Assertion(A) and the other is labelled as Reason (R).Assertion (A) : In Vernier calliper if positive zero error exists, then while taking measurements, the reading taken will be more than the actual reading.Reason (R) : The zero error in Vernier Calliper might have happened due to manufacturing defect or due to rough handling.In the light of the above statements, choose the correct answer from the options given below :

1. Both (A) and (R) are correct and (R) is the correct explanation of (A)
2. Both (A) and (R) are correct but (R) is not the correct explanation of (A)
3. (A) is true but (R) is false
4. (A) is false but (R) is true

# Question 29

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 30

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