Exam Code Test Booklet Code

Class 11 - Units and Measurements

1. Give the correct statements:
i) Dimensionally correct equation must be actually correct
ii) Dimensionally correct equation need not be correct
iii) Dimensionally wrong equation need not be wrong
iv) Dimensionally wrong equation must be actually wrong

(a) i &iv
(b) i & iii
(c) ii & iv
(d) ii & iii

Answer: c

2. The dimensional formula for latent heat is:

(a) MLT^{-2}
(b) $M^0L^2T^{-2}$
(c) $M^0L^2T^2$
(d) ML^2T^{-2}

Answer: b

3. Which of the following pairs have the same dimension:

(a) Work and power
(b) Force and momentum
(c) Impulse and force
(d) Impulse and momentum

Answer: d

4. Find the odd one:

(a) Pressure
(b) Stress
(c) Strain
(d) young's modulus

Answer: c

5. The largest practical unit of mass is :

(a) ton
(b) metric ton
(c) pound
(d) chandrasekhar limit

Answer: d

6. In the international system of units, the magnetic μ_0 is permeability is measured in:

(a) $Wb\,m^{-1}A^{-1}$
(b) $Wb\,m^1A^1$
(c) $Wb\,m^{-1}A$
(d) $Wb\,m\,A^{-1}$

Answer: a

7. Find the odd one

(a) Frequency
(b) Temperature
(c) Current
(d) Time

Answer: a

8. The surface area and volume of a cubical body are equal. The side of such a cube is :

(a) 12 units
(b) $10units$
(c) $8units$
(d) $6Units$

Answer: d

9. The magnitude of density of water in SI system is:

(a) 10
(b) 100
(c) 1
(d) 1000

Answer: d

10. If R is Rydberg constant, h is Plank's constant and c is the velocity of light, then Rhc has the same dimensional formula as that of:

(a) Force
(b) Power
(c) Energy
(d) Angular momentum

Answer: c

11. Slug is the unit of :

(a) Mass
(b) Length
(c) Time
(d) Frequency

Answer: a

12. Who discovered the principle of inertia:

(a) Galileo
(b) Newton
(c) Kepler
(d) Marconi

Answer: a

13. Photoelectric effect was discovered by :

(a) Einstein
(b) Bohr
(c) Hertz
(d) Millikan

Answer: c

14. If A is the amplitude, T is the time period, V is the velocity of a wave, the displacement at time t is given by:

(a) $y = A\,sin\,(Vt)$
(b) $y = At\,sin(Vt/A)$
(c) $y = \frac{At}{T} sin\,(Vt)$
(d) $y = \frac{At}{T} sin\,(Vt/x)$

Answer: d

15. The velocity of water waves may possibly depends on wavelength of the wave λ,density of water and acceleration due to gravity g. Then v^2 is proportional to:

(a) $\lambda\rho g$
(b) $\lambda^2\,\rho^2\,g^2$
(c) λg
(d) ρg

Answer: c

16. Plank's constant has the dimension same as that of:

(a) Angular momentum
(b) Frequency
(c) Energy
(d) velocity

Answer: a

17. If the dimensional formula for acceleration, velocity and length are $\alpha\beta^{-2}$, $\alpha\beta^{-1}$ and $\alpha\gamma$, the dimensional formula for coefficient of friction is:

(a) $\alpha\beta\gamma$
(b) $\alpha^{-1}\beta^{-1}\gamma^{-1}$
(c) $\alpha^{-1}\beta^0\gamma^0$
(d) $\alpha^0\beta^0\gamma^{-1}$

Answer: d

18. If kinetic energy , velocity V and time T are chosen as the fundamental units, the dimensional formula for surface tension is:

(a) KV^2T^{-2}
(b) KV^2T^2
(c) $KV^{-2}T^{-2}$
(d) $K^2V^2T^{-2}$

Answer: c

19. The dimensional formula for angle is:

(a) MLT
(b) M^0LT^0
(c) $M^0L^{-1}T^0$
(d) $M^0L^0T^0$

Answer: d

20. If I is the moment of inertia and is the angular velocity. What is the dimensional formula of rotational kinetic energy $\frac{1}{2}I\omega^2$

(a) ML^2T^{-1}
(b) $M^2L^{-1}T^{-2}$
(c) ML^2T^{-2}
(d) $M^2L^{-1}T^2$

Answer: c

21. Slug the unit of:

(a) Mass
(b) Length
(c) Time
(d) Frequency

Answer: a

22. In the equation, Velocity=$K + \frac{Force}{X}$, the unit K is:

(a) m
(b) m/s
(c) m/s^2
(d) m^3

Answer: b

23. The distance travelled during the n^{th} ,second is given by $S_n = u + \frac{a}{2}(2n-1)$ where u is the initial velocity and a is the acceleration . The equation is:

(a) Dimensionally wrong but actually correct
(b) Dimensionally correct but actually wrong
(c) Dimensionally as well as actually wrong
(d) Dimensionally as well as actually correct

Answer: d

24. In the relation $y = a\,Cos(\omega t - kx)$),the dimensional formula for K is:

(a) M^0LT^0
(b) MLT
(c) $M^0L^{-1}T^0$
(d) M^0LT

Answer: c

25. A physical quantity X is related to three observables length, mass and time as follows. $X = \frac{l^a m^b}{T^c}$. If α, β and γ are the percentage errors in the measurement of l,m and T respectively,then the maximum percentage of error in the measurement of X is:

(a) $a\alpha + b\beta - c\gamma$
(b) $a\alpha + b\beta + c\gamma$
(c) $\frac{\alpha^a \beta^b}{\gamma^c}$
(d) $\frac{a\alpha b\beta}{c\gamma}$

Answer: b