OBJECTIVE CBT QUESTIONS(PHY 101)

1. Which of the following is not a physical quantity?
   A. Kelvin
   B. Candela
   C. Henry
   D. All of the above
   Answer: [D] none of the above

2. Which of the following is a derived unit?
   A. Ampere
   B. Mole
   C. Candela
   D. Newton
   Answer: [D]

3. Rad/sec is the unit of
   A. Angular displacement
   B. Angular velocity
   C. Angular acceleration
   D. Angular momentum
   Answer: [B]

4. Which would fall with greater acceleration in a vacuum – a leaf or a stone?
   A. The leaf
   B. The stone
   C. They would accelerate at the same rate
   D. It is difficult to determine without more information
   Answer: [C]

5. Speed is
   A. A measure of how fast something is moving
   B. Always measured in terms of a unit of distance divided by a unit of time
   C. The distance covered per unit time
   D. All of the above
   E. None of the above
   Answer: [D]

6. As an object falls freely in a vacuum, its
   A. Velocity increases
   B. Acceleration increases
   C. Both A and B
   D. None of the above
   Answer: [C]

7. A ball is thrown upwards and caught when it comes back down. In the absence of air resistance, the speed of the ball when caught would be
   A. Less than the speed it had when thrown upwards
   B. More than the speed it had when thrown upwards
   C. The same as speed it had when thrown upwards
   Answer: [C]

8. Suppose an object is in free fall. Each second the object falls
   A. The same distance as in the second before
   B. A larger distance than in the second before
   C. With the same instantaneous speed
   D. With the same average speed
   E. None of the above

Answer: [C]

9. A ball is tossed vertically upwards rises, reaches its highest point, and then falls back to its starting point. During this time, the acceleration of the ball is always
   A. In the direction of motion
   B. Opposite its velocity
   C. Directed downward
   D. Directed upward
   Answer: [A]

10. Suppose you take a trip that covers 180km and takes 3hrs to make, your average speed is
   A. 30km/hr
   B. 60km/hr
   C. 180km/hr
   D. 360km/hr
   E. 540km/hr
   Answer: [B]

11. Suppose a car is moving in a straight line and steadily increases its speed. It moves from 35km/hr to 40km/hr the first second, and from 40km/hr to 45km/hr the next second, what is the car's acceleration?
   A. 5km/hr.s
   B. 10km/h.s
   C. 35km/h.s
   D. 40km/h.s
   E. 45km/h.s
   Answer: [A]

12. A ball is thrown straight up. At the top of its path its instantaneous speed is
   A. 0m/s
   B. About 5m/s
   C. About 10m/s
   D. About 20m/s
   E. About 50m/s
   Answer: [A]

13. A ball is thrown straight up. At the top of its path, its acceleration is
   A. 0m/s2
   B. About 5m/s2
   C. About 10m/s2
   D. About 20m/s2
   E. About 50m/s2
   Answer: [A]

14. A car accelerates at 2m/s2. Assuming the car starts from rest, how much time does it need to accelerate to a speed of 20m/s?
   A. 2seconds
   B. 10seconds
   C. 20seconds
   D. 40seconds
   E. None of the above
   Answer: [B]

15. The pair of quantities which have the same dimensional formula is
   A. Impulse & Velocity
   B. Force & Weight
   C. Impulse & Inertia
   D. Angular momentum & Linear momentum
   Answer: [B]

16. If R is resistance and L is inductance, then the dimension of R/L will be the same as the dimension of
    A. Time
    B. Speed
    C. Frequency
    D. Acceleration
    Answer: [C]

17. If M^aL^bT^c is the dimensional formula of electric power, find the value of 5a+2b-6c
    A. 25
    B. 27
    C. 30
    D. -9
    Answer: [B]

18. The dimensional formula coefficient of kinematic viscosity is
    A. M^0 L^2 T^(-1)
    B. M^1 L^2 T^(-1)
    C. M^1 L^2 T^(-3)
    D. M^0 L^3 T^(-1)
    Answer: [A]

19. Which of the following is not a unit of energy?
    A. Joule
    B. Nm
    C. Watts
    D. Kg m^2 sec^(-2)
    Answer: [A]

20. Dimensional formula of latent heat is
    A. M^1 L^1 T^(-2)
    B. M^0 L^2 T^(-2)
    C. M^1 L^2 T^(-1)
    D. M^0 L^2 T^(-2)
    Answer: [B]

21. Which of the following is dimensionally a correct formula?
    A. V = ut + at
    B. V - u = at
    C. v/u = at
    D. vt = u – a
    Answer: Talking ‘bout dimension, best option is [B]

22. Which of the following has no units?
    A. Thermal capacity
    B. Magnetic susceptibility
    C. Angular acceleration
    D. Moment of a magnet
    Answer [B]

23. Which of the following units is a fundamental unit?
    A. Watt
    B. Joule/sec
    C. Ampere
    D. Newton
    Answer: Ampere [C]

24. 1KWH is a unit of

A. Time
B. Power
C. Energy
D. Stress
Answer: is the unit of Energy consumption in electricity [C]

25. Which of the following is a pair of supplementary fundamental quantities?
A. Mole & radian
B. Candela & meter
C. Second & Kelvin
D. Radian & steradian
Answer: Radians & Steradians [D]

26. If M^aL^bT^c is the dimensional formula of momentum, and M^xL^yT^z is the dimensional formula of energy, find the value of ax + by +cz
A. 5
B. -1
C. 2
D. 7
Answer: [A]

27. Which of the following is the unit of energy
A. Newton
B. N/sec
C. N-sec
D. None of the above
Answer: None of the above [D]

28. Which of the following is not a unit of power?
A. Watt
B. Joule/hr
C. Nm/sec
D. N/sec
Answer: [D]

29. The physical quantity having the unit of mass is
A. Density
B. Momentum
C. Inertia
D. Moment of a force
Answer: [C]
NB: Theory of Physics teaches that Inertia is very similar to Mass
However, they are not exactly the same

30. The fundamental unit which is common in F.P.S. and M.K.S. systems is
A. Foot
B. Second
C. Kilogram
D. Pound[D]
Answer: [B]

31. Which of the following is unit of length?
A. Lunar month
B. Candela
C. Kelvin
D. Light year
Answer: It is called Light year [D]
NB: It is wrong to choose Lunar Month
Lunar month is equivalent to 4 full weeks

OR

Lunar month is the duration/interval between a New Moon and the next New Moon

32. Boltzman's constant and plank's constant differ in the dimensions of
    A. Time and Temperature
    B. Mass and Temperature
    C. Length and Mass
    D. Length and Time
    Answer: [A]

33. Magnetic Induction and Magnetic Flux differ in the dimensions of
    A. Time
    B. Mass
    C. Electric current
    D. Length
    Answer:[D]

34. Kgm/sec is the unit of
    A. Impulse
    B. Angular acceleration
    C. Capacity of condenser
    D. Acceleration
    Answer: [A]

35. Candela is the unit of
    A. Magnetic flux
    B. Intensity of electric filed
    C. Luminous intensity
    D. Charge
    Answer: [C]

36. Which of the following is a common unit of a physical quantity in M.K.S. and S.I. systems?
    A. Ampere
    B. Kelvin
    C. Mole
    D. Joule/Sec
    Answer: No Answer

37. A force of 5N extends a spring of natural length 0.5m by 0.1m. What will be the extension of the spring when the applied force is 20N?
    A. 0.1m
    B. 0.4m
    C. 0.2m
    D. 0.3m
    Answer: [B]

38. As the extension in a string increases from 100N to 180N, the string extends by 10cm. The work done increasing the tension in the string is
    A. 40J
    B. 0.4J
    C. 4J
    D. 0.04J
    Answer: [C]

39. Two moles of an ideal gas are compressed slowly and isothermally from a volume of $72m^3$ to $18m^3$ at the temperature of 60^0C. Calculate how much work done (R = 8.31J/mol K)
    A.
    B.

C.
D.

[A]

40. Rad/sec is the unit of
    A. Angular Distance
    B. Angular frequency
    C. Angular acceleration
    D. Angular momentum
    Answer: [B]

41. Candela is the unit of
    A. Luminous Flux
    B. Luminous Area
    C. Luminous Intensity
    D. Luminous Illumination
    Answer: [C]

42. A satellite is in a parking orbit if its period is
    A. Less than the period of the earth
    B. More than the period of the earth
    C. Equal to the period of the earth
    D. The square of the period
    Answer: [C]

43. Which of the following is incorrect?
    A. Crystalline solids have definite melting points
    B. Glass is an example of a crystalline solid
    C. Amorphous solids are insoluble
    D. Amorphous solids are anhydrous
    Answer: [B]

44. A speedometer measures the .....in your car
    A. Instantaneous velocity
    B. Acceleration
    C. Time
    D. Average velocity
    Answer: [D]

45. A gun of mass 20kg at a speed of 10m/s. What is the gun speed of recoil?
    A. 20m/s
    B. 200m/s
    C. 2m/s
    D. 0.2m/s
    Answer: Incomplete Question

46. The unit of angular frequency is
    A. Rad/s2
    B. Rad/s
    C. m/s
    D. rad
    Answer: [B]

47. The kind of collision where energy is not conserved is called.....
    A. Inelastic collision
    B. Kinetic collision
    C. Potential collision
    D. Elastic collision
    Answer: [A]

48. The type of vibration experienced by an object from external actions on is called
    A. Natural vibrations
    B. Sinusoidal vibrations
    C. Forced vibrations
    D. Damped vibrations
    Answer: [C]

49. The property of metal that makes it suitable for cooking is
    A. Good conduction of heat
    B. Radiation of heat
    C. Convection
    D. Absorption of heat
    Answer: [A]

50. A vertical spring fixed at one end has an extension of 12 extension has a mass 2kg attached at one end of the spring. Calculate the spring constant
    A. 500N/m
    B. 5000N/m
    C. 0.5N/m
    D. 50N/m
    Answer: [A]

51. The fundamental quantity in M.K.S. and C.G.S is
    A. Kelvin
    B. Kilogram
    C. Metre
    D. Second
    Answer: [D]

52. The maximum distance in SHM is
    A. Amplitude
    B. Period
    C. Distance
    D. Frequency
    Answer:[A]

53. The pressure of a gas supports 0.7m of M of relative density 13.3. The height of a water column which the gas will support is
    A. 19.0m
    B. 9.3m
    C. 1.9m
    D. 0.7m
    Answer: [D]

54. Momentum is .....quantity
    A. Vector
    B. Scalar
    C. Dimensionless
    D. None of the above
    Answer: [A]

55. Unit of impulsive force is
    A. N/m2
    B. N/m
    C. Kgm/s
    D. Kgm/s2
    Answer: [C]

56. When a car's velocity is positive and its acceleration is negative, what is the state of the car?
    A. The car slows down
    B. The car travels at constant speed
    C. The car speeds up
    D. The speed of the car equals zero
    Answer: [A]

57. The fundamental unit which is common f.p.s. and m.k.s. system is
    A. Foot
    B. Second
    C. Kilogram
    D. Pound
    Answer: [B]

58. An elastic string of length X is classifiably stretched through a length e by a force F, the area of the cross section of the string is A and its young modulus is E which of the following expression is correct?
    A.
    B.
    C.
    D.
    Answer: [D]

59. How long does it take a 800W heater to raise the temperature of 2kg of water from 20^0C to 60^0C? (S.H.C. of water = 4200J/kg K)
    A. 4200s
    B. 420s
    C. 42s
    D. 4.2s
    Answer: [B]

60. Which of the following is not a physical quantity?
    A. Henry

    B. Coulomb

    C. Kelvin

    D. All of the above

    Answer: [D]

61. An object moving with SHM of frequency 20Hz. Calculate the period T
    A. 5.0s
    B. 0.05s
    C. 0.005s
    D. 0.5s
    Answer: [B]

62. The period of vibration of wavelength 30m and velocity 300m/s is?
    A. 2s
    B. 1s
    C. 900s
    D. 60s
    Answer: [B]

63. Metals are idea as cooking utensils because

A. Poor radiation of heat
B. Low specific heat capacity
C. High coefficient of expansion
D. Good conductor of heat
Answer: [D]

64. Calculate the work done when force is 20N stretches a spring of 50mm
A. 2.0J
B. 0.5J
C. 2.5J
D. 1.5J
Answer: [B]

65. Which of the following has the highest viscosity at room temperature?
A. Palm oil
B. Alcohol
C. Kerosine
D. Water
Answer: [A]

66. A ball is thrown straight up. At the top of its path, its acceleration is
A. 0m/s2
B. About 5m/s2
C. About 10m/s2
D. About 20m/s2
Answer: [C]

67. The force which acts opposite in direction to the force at the centre is
A. Centripetal
B. Centrifugal
C. Frictional
D. Push
Answer: [B]

68. For two perpendicular vectors, the angle between them is
A. 0 degree
B. 45 degree
C. 90 degree
D. 180 degree
Answer: [C]

69. For two parallel vectors, the angle between them is
A. 0 degree
B. 45 degree
C. 90 degree
D. 180 degree
Answer: [A]

70. At what angle is the resultant of two vectors minimum
A. 0 degree
B. 90 degree
C. 180 degree
D. 45 degree
Answer: [C]

71. The area under a velocity-time graph is
A. Average speed
B. Average acceleration
C. Displacement

D. Uniform speed
Answer: [C]

72. The tendency of an object in a curved path fly away from the centre of curvature is due to lack of
A. Centrilugal force
B. Centripetal force
C. Centrifugal force
D. Centifugal force
Answer: [B]