RIPHAH INTERNATIONAL UNIVERSITY
Department of Physics
Sample Admission Test

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Program: BS PHYSICS   **Time: 60 Minutes**

1. **When the speed of a moving body is doubled its ?**

   A.   P.E is doubled
   B.   K.E is doubled
   C.   Acceleration is doubled
   D.   Momentum is doubled

2. **$ML^{-1}T^{-2}$ is the dimensional formula for?**

   A. Moment of inertia
   B. Pressure
   C. Elasticity
   D. Couple acting on a body

3. **In simple harmonic motion damping depends upon?**

   A. Natural Frequency
   B. Amplitude
   C. Frictional Force
   D. None of the Above

4. **Which one of the following is not a unit of length?**

   A.   Angstrom
   B.   Micron
   C.   Light Year
   D.   Radian

5. **If the dielectric constant of a capacitor is decreased, then its capacitance will?**

   A. Be Destroyed
   B. Remain Same
   C. Decrease
   D. Increase

6. **The dimension of the following pair is not the same?**

   A. Mass and Moment of Inertia
   B. Work and Energy
   C. Work and Torque
   D. Momentum and Impulse

7. **Length of a metal cylinder with the help of a vernier callipers of least count 0.01cm is 5.35cm. Its percentage uncertainty in length is approximately?**

   A. 2 %
   B. 2.30 %
   C. 0.20 %
   D. 0.30 %

8. **When the second condition for equilibrium is satisfied, then there is no ?**

   A. Linear Acceleration
   B. Angular Acceleration
   C. Both A & B
   D. None of the Above

9. **The angle of projection of a projectile for which its maximum height and horizontal range are equal is?**

   A. 76°
   B. 60°
   C. 55°
   D. 45°

10. **Which one of the following is not regarded as a fundamental quantity in physics?**

    A. Weight
    B. Mass
    C. Time
    D. Length

11. **When velocity time graph is a straight line parallel to time axis then?**

    A. Acceleration is constant
    B. Velocity is zero
    C. Acceleration is variable
    D. Acceleration is zero

12. **A body is falling freely under gravity. How much distance it falls during an interval of time between 1st and 2nd seconds of its motion, taking g = 10?**

   A. 0.50 m
   B. 14.50 m
   C. 5.00 m
   D. 9.80 m

13. **A cricket ball is hit at 45° to the horizontal with K.E. of E. The K.E. at the highest point is ?**

   A. Zero
   B. E/2
   C. $E/\sqrt{2}$
   D. E

14. **Which of the following types of force can do no work on the particle on which it acts?**

   A. Frictional force
   B. Gravitational force
   C. Centripetal force
   D. Elastic force

15. **Proton, electron, neutron and α particles have same momentum. Which of them have highest K.E?**

   A. Electron
   B. Neutron
   C. α Particle
   D. Proton

16. **The escape velocity of a body in gravitational field of earth is independent of?**

   A. its mass
   B. The angle at which it is thrown
   C. Both its mass and the angle at which it is thrown
   D. Gravitational field of earth

17. **The period of a circular motion is given by?**
   A. T = rV
   B. T = ωw
   C. T = 2πω
   D. T = 2π/ω

18. **If a car moves with a uniform speed of 2 ms^{-2} in a circle of radius 0.4m. its angular speed is?**

   A. 4 rad. s^{-1}
   B. 5 rad. s^{-1}
   C. 1.60 rad. s^{-1}
   D. 2.80 rad. s^{-1}

19. Drag force is given by?

    A. Gauss's law
    B. Pascal's law
    C. Stoke's law
    D. Newton's law

20. If the displacement of a body executing simple harmonic motion (S.H.M) is plotted against time, then the curve is known?

    A. Frequency of S.H.M
    B. Period of S.H.M
    C. Wave form
    D. Displacement

21. If length of second pendulum becomes four times, then its time period will become ?

    A. 4 times
    B. 6 times
    C. 8 times
    D. 2 times

22. Doppler effect applies to ?

    A. Sound waves only
    B. Light waves only
    C. Both options A & B
    D. None of the above

23. Which one of the following properties of light does not change with the nature of the medium?

    A. Velocity
    B. Wavelength
    C. Frequency
    D. Amplitude

24. Critical angle is that incident angle in denser medium for which angle of refraction is ?

    A. 0°
    B. 45°
    C. 120°
    D. 90°

25. At constant temperature, the graph between V and 1 / P is?

    A. Hyperbola
    B. Parabola
    C. Exponential curve
    D. A straight line

26. Average translational kinetic energy per molecule of an ideal gas is given by?

   A. $3N_aT/2R$
   B. $2N_aT/3$
   C. $3RT/2N_a$
   D. $3N_a/2RT$

27. The amount of heat required raising the temp. of 1 kg of a substance through 1 K is called?

   A. Specific heat
   B. Heat capacity
   C. Joule
   D. Calorie

28. Induced electric currents can be explained using which of the following law ?

   A. Faraday's law
   B. Biot Savarat's law
   C. Coulomb's law
   D. None of the above

29. A two farad and a four farad capacitor are connected in series. What single capacitance is "equivalent" to this combination?

   A. 4/3 Farads
   B. 6 Farads
   C. 12 Farads
   D. 1.33 Farads

30. The frequency of a wave is 50 Hertz and its wavelength is 25 meters. What is the velocity of this wave?

   A. 1350 m/sec
   B. 1250 m/sec
   C. 2 m/sec
   D. 0.5 m/sec

31. An infinitely long wire carries a current of three amps. The magnetic field outside the wire is?

   A. Pointing outwards
   B. Pointing inwards
   C. Parallel to the wire
   D. None of the above

32. What is the weight of a 5kg object at the surface of the earth ?

    A. 5.0 kg
    B. 25 N
    C. 49 kg
    D. 49 N

33. If the distance between the earth and moon were halved, the force of the attraction between them would be?

    A. 1/4 times
    B. 4 times
    C. 2 times
    D. 1/2 times

34. When a metal becomes a superconductor, there is a tremendous decrease in its?

    A. Total volume
    B. Electrical resistance
    C. density
    D. Length

35. Alpha particles are nuclei of?

    A. Nitrogen
    B. Carbon
    C. Hydrogen
    D. Helium

36. Lenz's law is an example of the law of conservation of one of the following. Is it conservation of?

    A. Energy
    B. Mass
    C. Density
    D. Charge

37. A machine's output is 4000 joules and its frictional losses are 1000 joules. Which of the following is its efficiency?

    A. 20 %
    B. 80 %
    C. 40 %
    D. 100 %

38. A rise in temperature of 20 Kelvin degrees is equal to a rise of ?

   A. 293 C°
   B. 20 C°
   C. 253 C°
   D. 60 C°

39. A circuit has a resistance of 200 ohms. The resistance of the circuit can be reduced to 120 ohms by adding which of the following to the circuit?

   A. 80 ohm resistor in series
   B. 150 ohm resistor in parallel
   C. 240 ohm resistor in series
   D. 300 ohm resistor in parallel

40. Which of the following phenomena suggest that light may be a transverse wave?

   A. Interference
   B. Diffraction
   C. Polarization
   D. Scattering

41. Two parallel wires carrying currents in opposite directions will?

   A. Have no effect on each other
   B. Attract each other
   C. Cause curve formation
   D. Repel each other

42. The most efficient heat engine that can operate between two temperature reservoirs T_1 and T_2 is?

   A. Steam engine
   B. Combustion engine
   C. Jet engine
   D. Carnot engine

43. A semiconductor device made up of a single p-n Junction is called a ?

   A. Resistor
   B. Diode
   C. Transistor
   D. Insulator

44. How much current does a 1500 Watt heater draw if supplied with a 120 Volt source?
   A. 150 Ampere
   B. 12.5 Ampere
   C. 300 Ampere
   D. 18000 Ampere

45. When an atom undergoes beta decay, the atomic number of the nucleus?

    A. remain unchanged
    B. Decrease by two
    C. increase by one
    D. None of the above

46. In any collision, which of the following is conserved ?

    A. Kinetic energy
    B. Potential energy
    C. Velocity
    D. Momentum

47. The phenomenon of diffraction also contain phenomenon of ?

    A. Interference
    B. Polarization
    C. Dispersion
    D. None of the above

48. Newton's second law states that the net force acting on a body is equal to the body's time rate of change of?

    A. Acceleration
    B. Momentum
    C. Displacement
    D. Speed

49. At a point halfway between two identical point charges, the electric field is equal to?
    A. Half of its maximum value
    B. Its maximum value
    C. Zero
    D. None of the above

50. Diffraction and interference demonstrate which of the following?

    A. Wave nature of light
    B. Particle nature of light
    C. Polarization
    D. Refraction of light