MULTIPLE CHOICE QUESTIONS

Five Year Papers

1. As a result of constant unbalanced force a body moves with __________.

(Uniform velocity, Uniform Speed, Uniform acceleration, Variable Acceleration)

2. The range of the Ghori missile is __________.

(1500km, 2000km, 2500km)

3. The velocity of a wave of wavelength λ and frequency ν is given by __________.

(ν/λ, λ/ν, $\nu\lambda$, $1/\lambda\nu$)

4. In aerodynamics the ratio of the velocity of the sound waves to the velocity of the source is called __________.

(Beats, Mach Number, Harmonics)

5. The structure of a crystal can be studied with the help of __________ of x-rays.

(Interference, Diffraction, Polarization)

6. The speed of sound __________.

(Increases with temperature, Decreases with temperature, Does not change with temperature)

7. Sound waves are __________.

(Longitudinal waves, Transverse waves, Not made of material medium)

8. If the vector addition of two vectors of magnitude 3 units and 4 units has a resultant of 5 units, then the angle between those two vectors is __________.

(0°, 45°, 90°)

9. A raindrop continues to fall with a uniform velocity when __________.

(its weight is balanced by air friction, its weight is balanced by air friction and upthrust, Its weight is balanced by upthrust)

10. Every point on a rotating body has the same __________.

(Linear Velocity, Angular Velocity, Angular Momentum)

11. When a body is thrown vertically upwards, it is a case of __________.

(Free fall motion, Projectile motion, Under gravity motion)

12. The characteristic of a musical sound, which distinguishes between the notes of the same pitche and intensity, is known as __________.

(Quality, Loudness, Intensity)

13. Sound wave travels faster in __________.

(Air, Water, Iron)

14. __________ of the following phenomena cannot be explained by the wave theory.

(Interference, Fiffraction, Photographic Effect)

15. In Newton's rings, the central spot is always __________.

(Dark, Bright, red)

16. When a particle move in a circle, the angle between its linear velocity 'v' and angular velocity 'ω' is always __________.

(90°, 180°, 0°)

17. They physical quantity which produces angular acceleration is called __________.

(Centripetal force, centrifugal force, Torque)

18. A string stretched between two fixed points is vibrating in one segment. The frequency generated is called __________.

(1^{st} overtone, Fundamental Frequency, Normal harmonics)

19. The loudness of sound depends upon __________.

(Wavelength, Frequency, amplitude)

20. When the temperature of air rises, the speed of sound waves increases because __________.

(frequency of the wave increases, only wavelength increases, both the frequency and wavelength increases)

21. A monochromatic light beam is entering from one medium into another. __________ of the following properties remains unchanged.

(amplitude, velocity, wavelength, frequency)

22. The angular speed of the second hand of a watch is __________.

($\pi/30$ rad/s, 1rad/s, πrad)

23. When a sound source moves towards a stationary listener there is __________.

(an apparent increase in wavelength, an apparent increase in frequency.

A decrease in pitche.)

24. Colour in soap bubbles is due to __________.

(Polarization of light, interference of light, reflection of light)

25. A body remains at rest or continuous to move with a uniform velocity unless it is acted upon by __________.

(an unbalanced force, A force equal to the weight of the body, a force)

26. Friction is a self-adjusting force. __________.

(It increases iindefinitely with the external force, it does not increase indefinitely with the external force, it remains constant)

27. The dispersion of white light into seven different colours when passed through a prism is due to __________.

(different intensities, different amplitudes, different wavelengths)

28. A pendulum bob is swinging with simple harmonic motion. Its potential energy is maximum at __________.

(Extreme position, mean postiion, at any other point along the path)

29. When light enters into a denser medium, its velocity __________.

(Increases, Decreases , remain the same)

30. Electromagnetic waves consist of an oscillatory electric field E and an oscillatory magnetic field B. Both fields are __________.

(Perpendicular to each other, parallel to each other, parallel to the direction of propagation of the waves)

31. A particle moving with a uniform speed in a circle has __________ acceleration.

(zero, maximum, uniform)

32. If the distance between the centre of the body and the centre of the earth increases the value of g __________.

(increases, decreases, remains the same)

33. Motion under elastic restoring force is called __________.

(Simple harmonic motion, Circular motion, Linar Motion)

Chapter 1

The Scope of Physics

1. The branch of physical science, which deals with interaction of matter and energy, is called __________.

(Physics, Chemistry, Biology)

2. The new era of modern physics began near the end of __________.

(17^{th} century, 18^{th} century, 19^{th} century)

3. Screw and lever were invented by __________.

(Newton, Huygen, Archimedes)

4. Phythagoras is famous in __________.

(Physics, Chemistry, None of these)

5. In the field of research the strong incentive comes from __________.

(Bible, Quran, Ingeel)

6. Number of ayah which are taken from Surah Nooh for our book are __________.

(11 and 12, 13 and 14, 15 and 16)

7. Number of ayah taken from Surah 'Al Imran' __________.

(170 and171, 180 and 181, 190 and 191)

8. Al-Khawarizmi was the founder of __________.

(Microbiology, Analytical Algebra, Physics)

9. Logarithm was invented by __________.

(Al- Beruni, Al-Khawarizmi, Ibn-e- Sina)

10. In Muslim world the man was both a poet and a mathematician is __________.

(Omer Khyyam, Al-Khawarizmi, Al-Beruni)

11. Kitabul Manazir was written by __________.

(Yaqoob Bin Ishaq, Ibn-e-Sina, Ibn-al-Haitham)

12. Pin hole camera was invented by __________.

(Ibn-al-Haithan, Al-Razi, Al-Beruni)

13. Ibn-e- Sina was famous for his research in the field of __________.

(Medicine, mathematics, physics)

14. Muslim scientist who wrote about 200 books is __________.

(Abn-e-Sina, Al-Razi, Omer khyyam)

15. 20^{th} century is called the century of __________.

(Physics, Chemistry, Mathematics)

16. Dimension of acceleration is __________.

(LT^{-1}, LT^{-2}, $L^{-1}T$)

17. The significant figures of 16, 7 are __________.

(7, 6 and 7, 1, 6 and 7)

18. The author of Kitab-ul-Masoodi was __________.

(Al-Beruni, Ibn-e-Sina, Ibn-al-Haitham)

19. The author of Al-Qanun-Fil-Tib was __________.

(Al-Beruni, Ibn-e-Sina, Ibn-al-Haitham)

20. Alsh-Shifa an encyclopedia of philosophy was written by __________.

(Al-Beruni, Ibn-e-Sina, Abn-al-Haitham)

21. Atomic clock is a (briefly) radio transmitter giving out short waves of wavelength about __________.

(3cm, 3m, 3A°)

22. The time interval occupied 9192631770 cycles of a specified energy change in the Cesium atom is taken as equal to one __________.

(second, minute, hour)

23. The ampere is the unit of __________.

(time, electric current)

24. Mole is the amount of substance of a system which contains as many elementary entities as there are atom in 0.012 kg of __________.

(Cesium – 133, Uranium – 298, Carbon – 12)

25. The dimension of volume is __________.

(L^2, L^{-2}, L^3)

26. The dimension of velocity is __________.

(LT^{-2}, $L^{-1}L^2$, LT^{-1})

27. The dimension of linear momentum is __________.

(MLT^{-1}, $ML^{-1}T$, $M^{-1}LT$)

28. The number of 6408.2 has __________ significant figure(s).

(one, four, five)

29. The circumference of a circle of radius 3.5 cm is __________.

(21.99cm, 38.49 cm,179.62 cm)

30. The volume of a sphere of radius 3.5 cm is __________.

(21.99 cm^3, 38.49cm^3, 179.62cm^3)

31. Al Khawarizmi was the founder of __________.

(Decimal system, Geomtery, Analytical Algebra)

32. A number, which is reasonably reliable, is called __________.

(Ratio, Function, Significant Figure)

33. Electromagnetic wave theory of light is proposed by __________.

(Maxwell, Newton, Huygen)

34. Wave mechanics were introduced by __________.

(De-Broglie, Maxwell, Newton)

35. Natural Radioactivity was discovered by __________.

(Madam Curie, Bacquerel, Max-Plank)

Chapter 2

Scalars and Vectors

1. Physical quantity, which can be completely specified by its magnitude only, is called __________.

(Scalars, Vectors, None of above)

2. Physical quantity, which can be completely specified by its magnitude as well as direction, is called __________.

(Scalars, Vectors, None of Above)

3. Two or more than two scalars measured in the same system of units are equal only if they have the __________.

(Same Magnitude, Same magnitude and direction, Same direction)

4. Vectors are denoted by __________.

(or a, b, c)

5. Magnitude of vectors is denoted by __________.

(or a, b, c)

6. Two vectors are equal without any consideration of their initial point only if they have __________.

(Same magnitude, Same magnitude and similar direction, Same direction)

7. The tail end of a vector line is called __________.

(Initial point of the vector, terminal point of the vector, final point of the vector)

8. The magnitude of a vector is always treated as __________.

(Negative, Non-Negative, Negative and Positive both)

9. In parallelogram law of vector addition the resultant of the vector is represented by __________.

(Diagonal of the parallelogram, any adjacent side of the parallelogram, opposite side of the parallelogram)

10. Law of cosine is normally used to determine the __________.

(Magnitude of resultant, direction of resultant, both magnitude and direction of the resultant)

11. The product of number "m" and vector generates a new vector . The magnitude of the product is represented by __________.

(B = |m|A, A = |m|B, |m| = BA)

12. Law of Sine is normally used for determination of __________.

(Magnitude of resultant, Direction of Resultant, Both Magnitude and Direction)

13. m = m is governed by __________.

(commutative law for multiplication, Associative law for multiplication, Distributive law for multiplication)

14. m = (mn) is governed by __________.

(Commutative law for multiplication, Associative law for multiplication, Distributive law for multiplication)

15. (m + n) = m = n follows __________.

(Commutative law, Associative Law, Distributive Law)

16. The division of a vector by a positive number n is given by = |m| where m = 1/n the direction of is __________.

(same as , oppoosite to , parallel to itself)

17. The division of vector by a negative number n is given by = |m| where m = 1/n the direction the is __________.

(same as , oppoosite to , parallel to itself)

18. A unit vector is represented by __________.

(, ,)

19. The unit vectors are __________.

(parallel to each other, perpendicular to each other, none of the above)

20. The sum of rectangular components vector produces the original vector, which is represented by __________.

21. The magnitude of vector is given by __________.

, ,)

22. The dot product of unit vectors and is equal to __________.

(i, ,)

23. The dot product of unit vectors and is equal to __________.

(

24. The cross product of unit vector and is equal to __________.

(0, 1,)

25. The vector product of and is __________.

(-, , r)

26. A vector which can be displaced parallel to it self and applied at any point is known as __________.

(Null vector, Free Vector, Position Vector)

27. A vector, which can represent the position of a point with respect to some fixed point in coordinate system, is called __________.

(Null Vector, Free Vector, Position Vector)

28. If two vectors which are equal in magnitude but opposite in direction, their combination produces __________.

(Null Vector, Free Vector, Position Vector)

29. The horizontal component of vector is given by __________.

($A \cos \theta$, $A \sin \theta$, $A \tan \theta$)

30. The vertical component of vector is given by __________.

($A\cos\theta$, $A\sin\theta$, Atan)

31. The product of magnitude of two vectors and cosine of the angle between them is called __________.

(Scalar Product, Vector Product, None of the above)

32. The product of magnitude of two vectors and sine of the angle between them is called __________.

(Scalar Product, Vector Product, None of the above)

33. If and are the two vectors then __________.

34. Two or more vectors are added by __________.

(Head to tail rule, simple addition, none of these)

35. The angle between the horizontal and vertical component of a vector is __________.

(90°, 0°, 180°)

36. If the resultant of two forces of magnitude 3N and 4N is 5N then the angle between these two forces is __________.

(0°, 45°, 90°)

37. The dot product of two vectors is zero when they are __________.

(In the same Direction, Perpendicular to each other, In the opposite direction)

38. If the cross product of two vectors is zero they are __________.

(Parallel to each other, Perpendicular to each other, Opposite in direction)

39. If are __________.

(Parallel to Each other, either A or B is a null vector, perpendicular to each other)

40. The cross product of two vector is a __________.

(Scalar, Vector, None of these)

Chapter 3

Motion

1. The change of position of a body in a particular direction is called its __________.

(Displacement, Velocity, Acceleration)

2. The change of displacement with respect to the time is called __________.

(Speed, Velocity, Acceleration)

3. The rate of change of position in a particular direction is called __________.

Displacement, Velocity, Acceleration)

4. The total change in displacement divided by the total change in time of body is called its __________.

(Average Velocity, Instantaneuous Velocity, Uniform Velocity)

5. The change of displacement in a very small interval of time (time tends to zero) of a body is called its __________.

(Average Velocity, Instantaneous Velocity, Uniform Velocity)

6. When a body undergoes an acceleration then __________.

(Its speed increases, Its velocity increases, It falls toward the earth)

7. A force acts on a body that is free to move. We known that magnitude and direction of the force and the mass of the body. Newton’s second law of motion enables us to determine the body’s __________.

(Acceleration, Speed, Velocity)

8. A hole is drilled through the earth along the diameter and a stone dropped into it. When the stone is at the centre of the earth it has __________.

(Mass, Weight, Acceleration)

9. A force of 3N acts perpendicularly to a force of 4N. Their resultant has magnitude of __________.

(1N, 5N, 7N)

10. In __________ of the following examples the motion of the car not accelerated.

(Car turns a corner at constant speed of 29km/hr, Car climbs a steep hill with its speed dropping from 60 km/hr at the bottom to 15 km/hr at the top, Car climbs a steep hill at the constant speed of 40km/hr)

11. The algebraic sign of acceleration depends on __________.

(The choice of direction, Whether an object is speeding up or slowing down, The position of the object)

12. The acceleration due to gravity __________.

(has the same value every where in space, has the same value every where on the earth, varies with the latitude on the earth)

13. Swimming is possible because of __________ law of motion.

(First, Second, Third)

14. A vehicle is moving horizontally at 30m/s. It is then accelerated uniformly in the same direction at 0.5 m/s^2 for 30 seconds. Its final speed is __________.

(180 m/s, 45.0 m/s, 90 m/s)

15. An object falls freely from rest with an acceleration of 10m/s2 (approximately). Then the distance traveled after 0.6 second is __________.

(1.8 m, 18.0 m, 3.6 m)

16. A trolley of mass 1.0kg travelling at 3m/s, collides with second trolley which is stationary. On collision the two trolley join together and continue to travel in the original direction with a common speed of 1.0 m/s. __________is the mass of second trolley.

(0.33kg, 0.67kg, 2.0kg)

17. A steel ball is dropped in a viscous fluid. It will __________.

(move down with uniform velocity, remain stationary, fall with uniform acceleration of 9.8 m/s^2)

18. A trolley of mass 2kg moves with constant acceleration on a smooth horizontal surface. Its speed changes from 4m/s to 16 m/s during 6.0 seconds. The trolley has an acceleration of __________m/s^2.

(0.5 , 0.66, 2)

19. During a stop a car comes to rest from a speed of 10 m/s in 5 seconds. Assuming a steady deceleration during this time, it will travel a distance of __________.

(2m, 10m, 25m)

20. A ball is dropped from a tall building falls to the ground. Ball reaches the ground in 3.0 seconds. __________ is the height of the building.

(15m, 30m, 45m)

21. A trolley of mass 2kg is moving at 15m/s. It collides head on with another trolley of mass 1kg initially at rest. The first trolley sticks with second one. __________ is the speed of both trolleys after collision.

(5m/s, 7.5m/s, 10m/s)

22. When a tennis ball is allowed to fall freely in air toward the ground. It is found that it acquires a uniform velocity. This is because the __________.

(Weight of the ball does not act beyond a certain speed, Upthrust of the displaced air supports the ball, Frictional force caused by the air increases with speed)

23. The force required to accelerate mass of 1kg at 1.0 m/s^2 is __________.

(1N, 10N, 100N)

24. If a stone falls from rest with a uniform acceleration of $10m/s^2$ (approximately) then __________.

(It falls equal distance in successive seconds, it falls 10.0 m during the first second, its speed increases by 10 m/s each second)

25. The frictionless trolley is moving horizontally at 30m/s. It is then accelerated uniformly in the same direction at 0.5 m/s^2 for 30.0 seconds. The final speed is __________.

(15 m/s, 45 m/s, 75 m/s)

26. A person covers half of its journey at a speed of 40 m/s and the other half at 50 m/s. His average speed during the whole journey is __________.

(45 m/s, 46 m/s, 48 m/s, 44.1 m/s)

27. An object is thrown vertically upward with a velocity of 40 m/s and returns after some time into the thrower's hands with the same velocity. Average velocity during the whole movement is __________.

(40m/s, 60m/s, 80 m/s, 0)

28. A body starts from rest and moves with uniform acceleration of $10m/s^2$ in the first 10 seconds. During the next 10 seconds it moves with uniform velocity attained. The total distance covered by it is __________.

(200m, 1000m, 1500m, 500)

29. A ball A dropped from the top of a building while another ball B is thrown horizontally at the same time. The ball strikes the ground is __________.

(Ball A, Ball B, Both strikes simultaneously)

30. __________ of the following is one dimensional motion.

(The wheels of a moving train, the earth revolving round the sun, A train running on a straight track)

31. A body has an initial velocity of 8 m/s. After moving 4m its velocity is 12 m/s. The acceleration is __________m/s^2.

(10, 100, 4)

32. A body starting from rest travels 120 m in 8th second. Assuring the motion to be uniform, its acceleration is __________m/s^2.

(15, 16, 10)

33. A body thrown vertically up with a velocity of 10m/s, comes back in to the hand of the thrower after 4 seconds. Height attained by the body is __________. (Take g = $10m/s^2$)

(10m, 5m, 15m)

34. The total change in velocity of a body divided by the total time is called __________.

(Average acceleration, Instaneous Acceleration, Uniform Accelration)

35. The change in velocity of a body in a very small interval of time (time interval tends to zero) is called __________.

(Average acceleration, Instantaneous Acceleration, Uniform Acceleration)

36. When there is equal change in velocity in equal intervals of time, then acceleration is called __________.

(Average Acceleration, Instantaneous Acceleration, Uniform Acceleration)

37. Force is that agent which produces or tends to produce the __________.

(Speed in the body, Acceleration in the body, Constant velocity in the body)

38. Whenever a constant force is applied on a body then it will move with __________.

(Cosntant Speed, Constant Velocity, Constant Acceleration)

39. The direction of tension in string will always in the __________.

(Same direction of applied force, Opposite direction of applied force, None of the above)

40. A body of mass 10kg is suspended by a string, the tension produced in the string is __________. (Take g = $10m/s^2$)

(100N, 9.8 N, 980 N)

41. In elastic collision between the two bodies __________.

(Only mometum of the system is conserved, Only the kinetic Energy of the system is conserved, Both the kinetic Energy and Momentum of the system remain the same)

42. In inelastic collision between the two bodies __________.

(Only mometum of the system is conserved, Only the kinetic Energy of the system is conserved, Both the kinetic Energy and Momentum of the system remain the same)

43. If a lighter body collides elastically with a massive body at rest then the lighter bodies will __________.

(Rebound, Come to rest, Start to move with a velocity double of its initial)

44. The kinetic friction will always be __________.

(Greater than the static friction, Equal to the Static Friction, Less than the static Friction)

45. The unit of coefficient of friction in SI system is __________.

(Newton, Dyne, None of These (No Unit))

46. Due to the rise in temperature the coefficient of fluid friction will __________.

(Decrease, Increase, Remain the same)

47. A body of mass 'm' slides down a frictionless inclined plane making an angle θ with the horizontal then __________ of the following statement is most appropriate.

(The component of its weight normal to the plane pulls it down the plane, The component of its weight parallel to the plane is balanced by the normal reaction of the plane, The body moves down the plane with a constant acceleration)

48. If a weight of 1 kg and 1gm are dropped from the same height simultaneously then __________.

(1kg will reach the ground earlier, 1gm weight will rach the ground earlier, bother will reach the ground at the same time)

49. If the velocity of the body is uniform then __________.

(Its speed remains uniform, Its speed and direction of motion will remain the same, Its acceleration is uniform)

50. If a particle is moving with constant speed in a circle then its velocity is __________.

(Zero, Uniform, Variable)

Chapter 4

Motion in Two Dimensions

1. The motion of a body along a straight line is called __________.

(Linear Motion, Angular Motion, Vibratory Motion)

2. The motion of a body along a curved path is called __________.

(Linear Motion, Angular Motion, Vibratory Motion)

3. The example of motion of the body in two dimensions is __________.

(Ball moving along a straight line, Progectile, Train moving along a straight track)

4. In projectile motion the object is purely under the influence of __________.

(Centripetal Force, Force of Gravity, Restoring Force)

5. In projectile motion (freely falling bodies) sign assigned to the acceleration due to gravity (g) will always be __________.

(Positive, Negative, None of these)

6. In considering the projectile motion all the vectors like, velocity and displacement along positive y-axis will be taken as __________.

(Positive, Negative, None of these)

7. During the projectile motion, the vertical component of a velocity __________.

(Changes, remains the same, None of these)

8. During the projectile motion, the horizontal component of the velocity __________.

(Increases, Remains the same, Decreases)

9. The path of the projectile is __________.

(Parabolic, Hyperbolic, Elliptical)

10. During the projectile motion the acceleration along the horizontal direction will __________.

(Decrease, Increase, be Zero)

11. In projectile the acceleration along vertical direction will __________.

(Decrease, Increase, Remain the same)

12. The expression for the time to reach the maximum height of the projectile is __________.

($Vosin\theta/g$, $2Vosin\theta/g$, $Vosin\theta/2g$)

13. The expression for the total time of flight of the projectile is __________.

($Vosin\theta/g$, $2Vosin\theta/g$, $Vosin\theta/2g$)

14. The expression for maximum height reached by the projectile is __________.

($Vo^2sin^2\theta/g$, $Vosin2\theta/2g$, $Vo^2sin^2\theta/2g$)

15. The expression for the horizontal range of the projectile is __________.

($Vo^2sin2\theta/g$, $Vosin^2\theta/g$, $Vo^2sin2\theta/2g$

16. The expression for the maximum range of the projectile is __________.

(Vo^2/g, $Vosin^2\theta/2g$, $Vosin\theta/2g$)

17. For the maximum range of the projectile the angle of elevation must be __________.

(0°, 45°, 90°)

18. The horizontal range of the projectile is directly proportional to the __________.

(Initial Velocity, Square of the initial velocity, Square root of the initial velocity)

19. The horizontal range of the projectile is directly proportional to the __________.

(sine of the angle of elevation, sine of the twice of the angle of elevation, square of the sine of the angle of elevation)

20. The expression for the trajectory of the projectile is __________.

($ax - \frac{1}{2} bx^2$, $a/x - bx^2/2$, $ax - bx^2$)

21. In projectile motion the small angle of elevation produces __________.

(Flat Trajectory, High Trajectory, Low trajectory)

22. In projectile motion the large angle of elevation produces __________.

(Flat trajectory, Low Trajectory, High trajectory)

23. If the angle of elevation of the projectile is 90° then its horizontal range will be __________.

(Minimum, Zero, Maximum)

24. For the projectile with high trajectory their time of flight will be __________.

(Short, Long, None of these)

25. For the projectile with low trajectory, their time of flight will be __________.

(Short, Long, None of these)

26. If a projectile has some horizontal range at an angle of elevation of 15° then its range will be the same when the angle of elevation is equal to __________.

(30°, 45°, 75°)

27. At maximum height, the vertical component of the velocity of the projectile is __________.

(Minimum, Zero, Maximum)

28. Horizontal motion with constant velocity and vertical motion with constant acceleration is called __________.

(Rectilinear Motion, Projectile Motion, Circular Motion)

29. A ball is thrown horizontally from a height of 400m with a muzzle velocity of 100m/s. It experiences a horizontal acceleration equal to __________.

($50m/s^2$, $9.8\ m/s^2$, zero)

30. If a shell is fired with the velocity of 9.8 m/s at an angle of 45° then its horizontal range will be __________.

(Zero, 4.9m, 9.8m)

31. A projectile is fired horizontally with an initial velocity of 20m/s. after 3 seconds its horizontal component of velocity is __________.

(60m/s, 6.67,20 m/s)

32. In projectile motion __________ of the following angle will result the maximum range.

(20°, 45°, 60°)

33. An aeroplane moving horizontally with a velocity of 100m/s, drops a food packet while flying at a height of 490m. The packet will strike the ground from the point just vertically below the point of the projection at a distance of __________.

(980m, 1000, 1960 m)

34. The ball A is dropped from the top of a building simultaneously the ball B is thrown horizontally then __________.

(ball A strikes the ground first, ball B strikes the ground first, both ball A and B will strike the ground simultaneously)

35. If the launch angle of a locust is 55° and its range is 0.8 m then the take off speed of a locust is __________.

(2 m/s, 2.9 m/s, 3.9 m/s)

36. __________ should be the initial velocity of a rocket if it to hit a target 1000 km away.

(3130.5 m/s, 313.5 m/s, 31.35 m/s)

37. If an object is moving with constant speed along a circle then its motion is __________.

(Linear, Vibratory, Uniform Circular)

38. The expression for the time period of an object moving with constant speed v along a circle of radius r is given by __________.

($4\pi r/v$, $2\pi r/v$, $\pi r^2/v$)

39. The angle subtended by an object with the centre of the circle when its is moving from one point to another on its circumference is called __________.

(Angular Displacement, Angular Speed, Angular Acceleration)

40. The unit of angular displacement in system of measurement is __________.

(Radian, m/s, rad/s)

41. The central angle subtended by an arc whose length is equal to the radius of the circle is equal to one __________.

(Radian, Degree, Gradient)

42. The relation linear (s) and angular (θ) displacements is given by __________.

($s = r\theta$, $s = r/\theta$, $\theta = sr$)

43. In the relation $s = r\theta$, θ will always be measured in __________.

(Degrees, Radian, None of these)

44. One radian is equal to __________.

(5.73 degrees, 57.3 degrees, 53.7 degree)

45. One degree is equal to __________.

(0.017 rad, 17.45 rad, 1.74 rad)

46. The angular displacement or shift per unit time is called __________.

(Angular Speed, Angular Velocity, Angular Acceleration)

47. One revolution is equal to __________.

(2π rad, $\pi/2$ rad, 4π rad)

48. 1 radial is equal to __________.

(2πrevolution, $\pi/2$ rad, $\pi 1/2$ revolution)

49. The direction of angular velocity is always along the axis of rotation and it can be determined by __________.

(Head to tail rule, Right hand rule, None of these)

50. If an object is rotating in the counter-clockwise direction then the direction then the direction of angular velocity is __________.

(Into the plane, Out of the plane, None of these)

51. If a particle with instantaneous linear velocity 'v' is rotating along the circumference of circle of radius 'r' then the relation between angular velocity (w) and its linear velocity (v) is given by __________.

($v = \omega/r$, $v = r\omega$, $\omega = vr$)

52. If a particle covers equal angular displacement in equal interval of time then its angular velocity is __________.

(Variable, Uniform, Average)

53. The rate of change of angular velocity is called __________.

(Angular Displacement, Angular Acceleration, None of these)

54. The unit of angular acceleration in SI system is __________.

(deg/s^2, m/s^2, rad/s^2)

55. The relation between linear acceleration (a) and angular acceleration (α) of a particle is given by __________.

($a = r\alpha$, $\alpha = a/r$, $\alpha = ar$)

56. The velocity of the particle tangent to its circular path is called __________.

(Angular Velocity, Uniform Angular Velocity, Tangential Velocity)

57. In circular motion the time period and angular velocity of a particle are __________.

(Directly proportional to each other, Inversely proportional to each, none of these)

58. If a particle is moving with constant speed along the circumference of a circle then the acceleration possessed by the particle is __________.

(Linear Acceleration, Centripetal Acceleration, None of these)

59. The direction of centripetal acceleration will always be __________.

(Towards the centre of the circle, Aways from the centre of the circle)

60. The force, which produces the centripetal acceleration, is called __________.

(Centrifugal Force, Gravitational Force, Centripetal Force)

61. The expression for centripetal acceleration is given as __________.

(v/r, v^2/r, $r^2\omega$)

62. The expression for centripetal acceleration in terms of time period (T) is given as __________.

($4\pi r^2/T$, $4\pi r/T$, $4\pi^2 r/T^2$)

63. The force, which keeps the body in circular motion and always directed towards the centre of the circle is called __________.

(Force of Gravity, Centripetal Force, Centrifugal Force)

64. The acceleration of the body or particle tangent to the circular path is called __________.

(Centripetal Acceleration, Tangential Acceleration, None of these)

65. In circular motion the tangential component of acceleration arises when __________.

(speed of the object is changed, speed of object is constant, direction of motion of the object is changed)

66. In circular motion the centripetal component of acceleration arises when __________.

(speed of the object is changed, speed of the object is constant, direction of motion of object is changed)

67. Centripetal acceleration and tangential acceleration are always __________.

(Parallel to Each other, Perpendicular to each other, None of thse)

68. A car is travelling at a constant speed of 20m/s rounds a curve of radius 100m. What is its acceleration.

($2m/s^2$, $3m/s^2$, $4m/s^2$)

69. If the speed of the object moving in a circle is doubled then centripetal force __________.

(Remains the same, Becomes half of its initial value, Becomes from times than its initial value)

70. When an object moves round the circular track, the centripetal force is provided by __________.

(Force of Gravity, Fictious Force, Frictional Force)

Chapter 5

Torque, Angular Momentum and Equilibrium

1. Troque is defined as __________.

(Time rate of change of angular momentum, Time rate of change of linear momentum, time rate of change of angular velocity)

2. The vector quantity torque __________.

(Depends on the choice of origin, does not depend on the choice of origin)

3. Every point of rotating rigid body has __________.

(the same angular velocity, the same linear velocity, the same linear acceleration)

4. The right hand rule is applied to find __________.

(The direction, of a vector obtained by the vector product of two vectors, The magnitude of a vector obtained in the above manner, neither the direction nor the magnitude)

5. Two forces, which form a couple __________.

(can be replaced by a single equivalent force, cannot be replaced by a single equivalent force, are perpendicular to each other)

6. The direction of torque is __________.

(The same as the direction of the corresponding applied force, opposite to the direction of the applied force, perpendicular to the direction of applied force)

7. The centre of mass of system of particles __________.

(coincides always with centre of gravity, never coincides always with the centre of gravity, coincides with the centre of gravity only in a uniform gravitational field)

8. The moment of momentum is called __________.

(Couple, Torque, Angular Momentum)

9. Dimensions of moment of inertia are __________.

($M^1L^{\circ}T^{-1}$, $M^1L^{\circ}T^{-1}$, $M^1L^2T^{\circ}$)

10. The unit of moment of inertia is SI system is __________.

(kg/m, kg-m, kg-m^2)

11. Radius of a ring is 2cm and its mass is 20g. Its M.I about an axis passing through its centre and perpendicular to its plane is __________.

(10g – cm^2, 80g – cm^2, 20g - cm^2, 40g – cm^2)

12. If the distance of a particle from the axis of rotation is doubled, the moment of inertia __________.

(Becomes half, Increases two times, increases four times, increases eight times)

13. The physical quantity, which produces angular acceleration, is called __________.

(Centripetal Force, Troque, Angular Velocity)

14. Torque of a force $T = \boxed{\quad\quad}$ is a vector quantity. Its direction is determined by __________.

(Right hand rule, Knowing the direction of F, Knowing the position of origin)

15. In rotational motion, the analog of force is __________.

(rotational inertia, moment of inertia, torque)

16. The term torque is synonymous with __________.

(Moment of force, Moment of inertia, Angular Momentum)

17. The product of force times the perpendicular distance between some point and the line of action of the force is __________.

(the moment of inertia acting on the body, The moment of force about the chosen point, The angular momentum of the body)

18. The magnitude of torque is equal to the product of the force and the moment arm. The moment arm is __________.

(The distance between the point (point chosen), and the pointof action of the force, the maximum distance between the point and the line of action of the force, The minimum (perpendicular) distance between the pivot and the line of action of the force)

19. If the direction of the applied force is reversed then __________.

(Its torque remains unchanged, the magnitude of its torque changes and direction of the torque remains the same, The magnitude of its torque remains the same but the direction of the torque reverses)

20. If the directions of $\boxed{}$ are reversed then __________.

(The magnitude and direction of the torque remain unaltered, the magnitude of the torque changes but direction remains unchanged, the magnitude of the torque does not change but direction reverses)

21. A couple consists of __________.

(Two equal and opposite forces acting at a point on a body, two equal and parallel forces acting at a point on a body, two equal and antiparallel forces acting at two different points on a body)

22. The arm couple is __________.

(The smallest distance between two equal and antiparallel forces, The greates distance between two equal and antiparallel forces, The lines of action of two equal and opposite forces)

23. The units of torque and couples are __________.

(N-m and N-m^2 respectively, N-m^2 and N-m respectives, N-m for both)

24. A pair of forces equal in magnitude and opposite in direction with non-coincident lines of action is known as __________.

(A couple, A Moment of Force, A Null Vector)

25. The centre of gravity of an object is __________.

(The foce of gravity on the object, The point about which the object rotates, The point at which the total weight of the objects acts)

26. The centre of gravity of a body a irregular shape lies __________.

(At its centre, At the surface of the body, At the intersection of medians)

27. During rotational motion, the mass of a body or system is considered to be concentrated at a single distance from the axis (centre) of rotation. The distance is called __________.

(The radius of Gyration, The centre of mass, The moment of inertia)

28. A force passing through the centre of gravity of a body __________.

(Results only in rotational motion, Results only in translational motion, holds the body in equilibrium)

29. In rotational motion, the analog of linear momentum $\boxed{\ }$ is called angular momentum $\boxed{\ }$. They are connected by relation __________.

($\boxed{\qquad\qquad\qquad\qquad}$)

30. In rotational motion, the quantity, which plays the same role as the inertial mass in rectilinear motion, is called __________.

(Inertia, Angular Momentum, Moment of Inertia)

31. The symbol that is used to represent rotational inertia or moment of inertia is __________.

(W, I, R)

32. The angular momentum (L) can be expressed in terms of moment of inertia (l) and angular velocity (ω) as __________.

($L = I\omega$, $L = I\,\omega^2$, $L = I/\omega$)

33. The product of the rotational inertia about an axis and the angular velocity of a body rotating about this axis is called __________.

(Moment of Inertia, Torque, Angular Momentum)

34. The moment of inertia or rotational inertial depends upon __________.

(Mass Distribution of the body about the axis of rotation, Mass of the body and its radius, Mass of the body and its angular speed)

35. The time rate of change of angular momentum of a body is equal to __________.

(The applied force, The applied torque, The moment of inertia)

36. If no external torques act, the angular momentum of a body rotating about a fixed axis in two dimension is __________.

(Variable, Constant, Not conserved)

37. The dimensions of angular momentum are __________.

(MLT^{-1}, MLT^{-2}, ML^2T^{-1})

38. The SI of angular momentum is __________.

($kgmsec^{-1}$, kgm^2sec^{-2}, kgm^2sec^{-1})

39. The turning effect of a force is called __________.

(Acceleration, Torque, Velocity)

40. If θ is the angle between force and displacement vectors then the physical quantity torque is mathematical expressed as __________.

($C = rF\sin\theta$, $C = Fr\cos\theta$, $C = Fr\tan\theta$)

41. The perpendicular distance from the axis of rotation of a body to the line of action of a force is called __________.

(Moment Arm, Torque, Displacement)

42. If the moment arm of a force is zero, i.e. the line of action of a force is passing through the pivot then the magnitude of the torque generated as such is __________.

(Zero, Clockwise, Anticlockwise)

43. The torque depends upon __________.

(Magnitude of force, Magnitude of Displacement, Magnitude of Force and Displacement)

44. The magnitude of torque will be zero if the angle between force and displacement is __________.

(0°, 45°, 60°)

45. The first condition us is sufficient to establish the mechanical equilibrium if __________.

(The body is spherically symmetric, The body is not deformable, The body may be considered as mass point)

46. An extended body in equilibrium many be analyzed as if it is a particle provided that __________.

(All the forces are concurrent, The lines of action of all forces meet in a common point, any of the above)

47. The condition for equilibrium of a particle is that the __________.

(Vector sum of all forces be zero, Acceleration be constant, Vector sum of the forces and torques be zero)

48. The particle moving with constant velocity may be __________.

(Changing in direction, Acceleration, In equilibrium)

49. Consider a body suspended from a ceiling by a single vertical cord. The weight of the body is a force exerted by __________.

(By the body on the ceiling, By the body on the cord, By the earth on the body)

50. It is easier to turn a steering wheel with both hands than with a single hand because __________.

(A couple acts on the wheel, Two equal and opposite forces act on the wheel, The wheel is more strongly gripped)

Chapter 6

Gravitation

1. The acceleration due to gravity __________.

(Has the same value every where in space, has the same value every where on the earth, Varies with latitude on the earth)

2. If a planet existed whose mass and radius were both twice that of the earth, then acceleration due to gravity at its surface would be __________.

(4.9 m/s^2, 19.6 m/s^2, 2.45 m/s^2)

3. When the space ship is at a distance equal to twice of the earth's radius from its centre then the gravitational acceleration is __________.

(4.9 m/s^2, 19.6 m/s^2, 2.45 m/s^2)

4. A hole is drilled through the earth along the diameter and a stone is dropped into it. When the stone is at the centre of the earth it has __________.

(Mass, Weight, Acceleration)

5. Newton's law of universal gravitation __________.

(Can only be indirectly inferred from the behaviour of the planent, Can be directly verified in the larboratory, is valid only with in the solar system)

6. The gravitational force between two bodies does not depend upon __________.

(Their separation, Product of their masses, The sum of their masses)

7. If the radius of the earth were to shrink by 1% while its mass remaining same, the acceleration due to gravity on the earth surface would __________.

(Decrease, Remain the same, Increase)

8. Planets revolve round the sun due to __________.

(Mutual attraction and repulsion between the sun and the planets, Gravitational attraction between the sun and the planets, Centripetal Force)

9. Force of mutual attraction of earth on the objects is called __________.

(Weight, Mass, Gravitation)

10. When a person goes down to the bottom of deep mine compared to his weight on the surface then its weight will __________.

(remain same, Increase, Decrease)

11. The weight of an object at the pole is greater than at equator. This is because __________.

(Gravitational pull is more at the poles, the shape of the earth, the attraction of the moon is maximum at the earth's surface)

12. On the surface of the moon the weight of a person __________.

(Increases, Decreases, Remains the same)

13. A spring balance is being used to weigh mass of 1kg in a lift. If the spring balance reads 9N and the acceleration of free fall (g) = $10 m/s^2$. The lift is __________.

(Ascending at $1 m/s^2$, At rest, Descending at $1 m/s^2$)

14. The acceleration of free fall on moon is about one sixth of its value on earth. If on the earth a body has mass 'm' and weight 'w', then on the moon, mass and weight will be respectively about __________.

(m/6 and w/6, m/6 and w, m and w/6)

15. Spring balance is used to measure __________.

(Mass of the object, Apparent weight of the object, None of the above)

16. A person whose weight is 120 pound on the earth, on the moon his weight will be approximately __________.

(20 pound, 30 pound, 40 pound)

17. According to the law of gravitation the force of attraction between the two bodies is directly proportional to the __________.

(Sum of the masses of the bodies, Product of their masses, Difference of their masses)

18. According to the Newton's law of gravitation the force of attraction between the two bodies is inversely proportional to the __________.

(distance between the two bodies, Square of the distance between the two bodies, none of the above)

19. The gravitational force between two bodies whose mass are m_1 and m_2 are placed at a distance r from each other is __________.

(, ,)

20. If the distance between two masses is doubled, the gravitational force between them becomes __________.

(half of its original value, one fourth of its original value, four times of its original value)

21. The value of gravitational constant is __________.

(6.673×10^{-11} N-m^2 /kg^2, 7.673×10^{-11} N-m^2 /kg^2, 8.673×10^{-11} N-m^2 /kg^2)

22. The dimensions of gravitational constant are __________.

($L^3M^{-1}T^{-2}$, $L^2M^2T^{-1}$, $LM^{-2}T^{-2}$)

23. The approximate value of the average density of the earth is __________.

(5.5×10^3 kg /m^3, 6.5×10^3 kg /m^3, 7.5×10^3 kg /m^3)

24. The value of g varies with radius of Earth as it is __________.

(Inversely proportional to the radius of the earth, Inversely proportional to the square of the radius of the earth, Directly proportional to the square of the radius of the earth)

25. Acceleration of the moon is about __________.

(2.272 x 10-^{3} m/s^2, 2.272×10^3 m/s^2, None of these)

26. The value of orbit radius of the moon is about __________.

(3.84×10^8 m, 3.84×10^5 m, 3.84×10^3 m)

27. The time taken by the moon to complete one revolution around the earth is __________.

(2.36×10^6 seconds, 2.36×10^4 seconds, 2.36×10^8 seconds)

28. The gravitational force of attraction between two balls each of mass 100kg when they are placed at a distance of 1m apart is __________.

(6.673×10^{-8} N, 6.673×10^{-11} N, 6.673×10^{-7} N)

29. The acceleration due to gravity decreases for a point above the surface of the earth and for the same point below the surface of the earth with a __________.

(Faster rate, Slow rate, Same rate)

30. The value of the gravitational acceleration at a distance equal to the earth's radius above the earth's surface is __________.

($9.8\ m/s^2$, $4.9\ m/s^2$, $2.45\ m/s^2$)

31. The value of the distance from the centre of the earth when the gravitational acceleration has one half the value it has on the earth's surface __________.

(1.414 Re, 2Re, 0.5Re)

32. A person with a mass of 40kg is standing on a scale in an elevator. The elevator moves upwards with a constant acceleration of $1.2\ m/s^2$, then the weight of the person as measured by him in the elevator is __________.

(340 N, 440N, 540N)

33. The sun exerts a force of attraction on the planets thus keeping them in their __________.

(Radii, Orbits, State of motion)

34. Numerical value of the gravitational acceleration can also be estimated by knowing the __________.

(Average Density of the Earth, Circular Motion, Mass of the earth)

35. A spring balance suspended from the ceiling of an elevator supports an object. The magnitude and direction of acceleration, which would make the balance reading zero, is __________.

($9.8\ m/s^2$ downward, $9.8\ m/s^2$ upward, none of these)

36. The earth traverses its circular orbit in 3.15×10^7 seconds, orbiting at an orbital velocity of 2.9×10^4 m/s, then its orbit radius is __________.

(1.45×10^{11} m, 1.45×10^8 m, 1.45×10^6 m)

37. The artificial gravity is produced in a satellite to overcome the state of weightlessness experienced by the astronaut by __________.

(Spinning it around its own axis, Increasing the orbital speed of it, Decreasing its orbital speed)

38. The expression for the frequency of rotation of the satellite to produce artificial gravity is __________.

($1/2\pi \sqrt{g/R}$, $2\pi \sqrt{g/R}$, $1/2\pi \sqrt{R/g}$)

39. If the mass of the earth becomes four times to its initial value then the value of g will be __________.

(Equal to its initial value, Four times to its initial value, One fourth of its initial value)

40. The value of gravitation acceleration (g) on the surface of the planet of radius 10^5 m and mass 10kg is __________.

(6.67×10^{-8} m/s^2, 6.67×10^{-11} m/s^2, 6.67×10^{-10} m/s^2)

41. The acceleration due to gravity on the surface of the moon is about _________.

(One sixth the acceleration due to gravity on the surface of the Earth, One fourth the acceleration due to gravity on the surface of the earth, double the acceleration due to gravity on the surface of the earth)

42. The mass of a planet and its diameter are three times those of Earth's. Then the acceleration due to gravity on the surface of the planet will be _________.

(One third on the Earth's, half on the Earth's, None of the above)

43. Acceleration due to gravity at the centre of the earth is _________.

(Zero, Maximum, None of these)

44. The equation, which gives the magnitude of centripetal acceleration of the moon, is _________.

($4\pi^2R/T^2$, $4\pi R/T^2$, $4\pi^2R/T$)

Chapter 7

Work, Enegrgy and Power

1. The dot product of force and displacement is __________.

(Work, Energy, Power)

2. When the force and displacement are parallel to each other, then work is __________.

(Minimum, Maximum, None of These)

3. When the force and displacement are perpendicular to each other, then work is __________.

(Minimum, Maximum, None of these)

4. When the force and displacement are in the opposite direction then the work is __________.

(Positive, Negativem, Zero)

5. The cross product of force and moment arm is __________.

(Work, Power, None of these)

6. Work is certainly done, if a body __________.

(Uses some energy, Covers some distance, Covers some displacement)

7. One electron volt is equal to __________.

(1.6×10^{-19}J, 1.6×10^{-18}J, 1.6×10^{19}J)

8. One joule is equal to __________.

(10^{3}erg, 10^{7}erg, 10^{-3}erg)

9. The dot product of force and velocity is called __________.

(Work, Power, Energy)

10. Power is a __________.

(Scalar Quantity, Vector Quantity, None of these)

11. Work done by a variable force is equal to __________.

(where Δdi is small, where Δdi is large, None of these)

12. A man does the work if he __________.

(Goes to fifth floor of the building, Goes to fifth floor of the building and comes back to ground floor, remains on the ground floor)

13. One horsepower is equal to __________.

(550ft.lb/s, 746 ft.lb/s, None of these)

14. Law of conservation of energy is equivalent to __________.

(Law of conservation of mass, Law of conservation of momentum, None of these)

15. The expression for the absolute potential energy of mass m at the earth surface is given as __________.

(mgh, GmMe/Re, GmMe/Re^2)

16. Work done on a body is equal to __________.

(P.t, P/t, F/A^2)

17. In a tug of war, team A is slowly giving way to the team B, then __________.

(Team A is doing negative work, Team A is doing positive work, team A is not doing work)

18. Kinetic energy of an object __________.

(Is independent of the direction of velocity, Depends on the direction of velocity, Is a scalar quantity)

19. Work energy equation is simply __________.

(Law of conservation of mass, Law of conservation of energy, none of these)

20. Work done by a grass cutter is maximum when he pulls it __________.

(Making an angle 45° with the floor, Making an angle of 90° with the floor, Along a line parallel to the floor)

21. A car covers some distance without any acceleration in it, then __________.

(Engine did some positive work, Engine did some negative work, none of these)

22. A body lifts a block on to a table in time Δt. The work he did, depends upon __________.

(Mass of the block, time, none of these)

23. The unit of power is __________.

(watt-hour, Joule-second, N-m/s)

24. The rate of change of momentum multiplies by displacement gives __________.

(Power, Pressure, Work)

25. A ball during its downward journey possesses __________.

(Kinetic Energy only, Potential Energy only, Both kinetic energy and potential energy)

26. Work done in the gravitational field __________.

(Is independent of the path followed, depends upon the path followed, none of these)

27. Work done in the gravitational field along a closed path is equal to __________.

(Zero, Maximum, none of these)

28. Einstein's mass energy equation is __________.

($E = mc$, $E = mc^2$, $E = m^2c$)

29. 1 kilowatt hour is equal to __________.

(3.6×10^6J, 6.3×10^6 J, None of these)

30. The tidal energy is due to the __________.

(Rotation of earth relative to moon, rotation of the earth around sun, none of these)

31. The dimensions of work are __________.

(ML^2T^{-2}, MLT^{-2}, ML^2T^{-1})

32. The dimensions of energy are __________.

(ML^2T^{-2}, MLT^{-2}, ML^2T^{-1})

33. The dimensions of power are __________.

(ML^2T^{-2}, ML^2T^{-3}, ML^3T^{-2})

34. __________ of the following quantity is defined as rate expenditure of energy.

(Momentum, Power, Velocity)

35. Gravitational potential energy transform into kinetic energy if __________.

(Water evaporates, A train accelerates from rest along a horizontal track, A body falls from a table)

36. __________ of the following represents the energy lost by a 1 N weight in falling through 1 m.

(0.10 J, 1 J, 10 J)

37. Watt may be defined as __________.

(Joule per coulomb, Joule per second, Newton meter)

38. __________ of the following does not convert one type of energy into another.

(Solar cell, Steam engine, Transformer)

39. __________ of the following has the same unit as that of potential energy.

(Acceleration, Momentum, Work)

40. Experiment shows that the average power of a man walking upstairs at an ordinary pace is only about __________.

(0.22 kW, 0.33 kW, 0.55 kW)

41. A body whose mass is 40g finds that he can run up a flight of 45 steps each 16 cm high in 5.2 sec. His power is __________.

(0.44 kW, 0.54 kW, 0.64 kW)

42. A person having a mass of 60kg exerts a horizontal force of 300N in pushing a 90 kg object through a distance of 3m along a horizontal floor. The work done by this person is __________.

(7000 Joules, 900 Joules, 1100 Joules)

43. __________ is the kinetic energy of 60 g bullet moving at a speed of 600 m/s.

(10,800J, 11,800J, 12,800J)

44. A ball of mass 2kg rolls from the top of a smooth slope which is 7 m high and 14 m long to its bottom. The change in the gravitational potential energy is approximately __________.

(137J, 139J, 141J)

45. A man weighing 600 N climbs 5m vertically upward in 8 seconds his rate of working is __________.

(175watt, 275watt, 375watt)

Chapter 8

Wave Motion and Sound

1. If k is a positive constant __________ of the following expression represents simple harmonic motion (x is the displacement of particle from mean position).

(Acceleration = kx, acceleration = -kx, acceleration = kx^2, acceleration = $-kx^2$)

2. If k and a are the positive constants and x is the displacement from equilibrium position. __________ of the following expression represents S.H.M.

(Velocity = k (a^2-x^2), Velocity = $\sqrt{k}(a^2 - x^2)$,Velocity =$\sqrt{k}(x^2 - a^2)$, Velocity = $k(x^2-a^2)$)

3. A bob of mass m is hanging from the end of an elastic spring and executing S.H.M with a period T. If this mass is replaced by another bob of mass 2m, the new time period of this system will be __________.

(T, 2T, √2T, T/2)

4. A bob of mass m is hanging from the end of an inelastic string is executing S.H.M with a period T. If this bob is replaced by an other bob of double mass. The new time period of this system will be __________.

(T, 2T, √2T, T/2)

5. __________ of is not true for S.H.M.

(Motion is Periodic, Elastic Restoring force must be present, System may possess inertia, Total Energy of system is conserved)

6. A body is attached to the end of a spring is executing S.H.M. at the extreme position its __________.

(Kinetic energy is maximum, Kinetic Energy is zero, Both kinetic and potential energy are zero, its velocity is maximum)

7. The motion of the simple pendulum is __________.

(Always simple harmonic, may be simple harmonic, can never be simple harmonic, circular)

8. A body is executing S.H.M if __________.

(Its acceleration is proportional to displacement and directed away from mean postion, Its acceleration is proportional to displacement and directed towards mean position, Its acceleration is zero, none of these)

9. A body is executing S.H.M at the mean position if __________.

(If its acceleration is maximum, its acceleration is zero, its velocity is zero, it posseses maximum potential energy)

10. A body is executing S.H.M at the mean position if __________.

(Its acceleration is maximum, Its velocity is maximum, It possesses maximum potential energy, none of these)

11. A body is executing S.H.M if __________.

(Its amplitude of motion remains constant, Its amplitude of motion may be constant, Its motion is not periodic, its motion may be vibratory)

12. A body is executing S.H.M with force constant k with an amplitude ‘a’, when its displacement is ‘x’. Its instantaneous K.E is represented by __________.

(1/2 $k(x^2-a^2)$, ½ kx2, ½ $k(a^2-x^2)$, A(k/m))

13. A simple pendulum is performing S.H.M with period T. If its length is doubled. The new time period will be __________.

(2T, 0.5T, 2.5T, 1.414 T)

14. If we increase the length of simple pendulum its time period will __________.

(Increase, Decrease, Remain same, becomes infinite)

15. A simple pendulum that behaves as a seconds pendulum on earth. If it is taken to moon. Where gravitational acceleration is one sixth that on earth. Its time period will become __________.

(4seconds, 12seconds, 3.5 seconds, 4.9 seconds)

16. A particle is moving in a circular path with constant angular speed. The motion of its projection along its any diameter is __________.

(Projectile, Translatory, Vibratory, Circular)

17. The trajectory of the bob of a vibrating simple pendulum after it has got suddenly detached from the thread while passing through its mean position is __________.

(Straight Line, Circular, Parabolic, Hyperbolic)

18. A string stretched between two fixed points is vibrating in one segment. The frequency generated is called __________.

(First overtone, fundamental Frequency, Second Harmonic, Normal Harmonic)

19. When the temperature of air rises, the speed of sound waves increases because.

(Frequency of the wave increases, both frequency and wavelength increases, Only wave length increases, Neither frequency nor wavelength changes)

20. The angular speed of the second hand of a watch is __________.

($\pi/30$ rad/s, 1 rad/s, πrad/s, 2π rad/s)

21. Restoring force is always present in __________.

(Linear Motion, Circular Motion, Simple Harmonic Motion, Projectile Motion)

22. The frequency of vibration in string of sonometer under tension T is f. If the vibrating length is halved, keeping tension constant, for the same wire, the frequency becomes __________.

(2f, 12f, ½ f, 4f)

23. A simple pendulum is transported to moon its frequency of oscillation will __________.

(Decreases, Increases, Remain constant, Become zero)

24. The pitch of note obtained by plucking a stretched string would be lowered by __________.

(Increasing the tension of the wire, Plucking it more vigorously, reducing the length of the string, wrapping a length of the fine wire round the string)

25. When pitch of a note is raised then __________.

(Frequency is decreased, Speed of sound is increased,

speed of sound is decreased, wavelength is increased)

26. __________ of the following must differ for a transverse and longitudinal wave moving in the same direction.

(Wavelength, Frequency, Amplitude, direction of Vibration)

27. A spectator watching a cricket match sees the bat strikes the ball and hears the sound of this about half a second later. This is because light waves and sounds waves have a different __________.

(Amplitude, Frequency, Intensity, Speed)

28. In one medium a wave has a frequency of the wave length λ and speed c, the waves passes from this medium to another where its speed is 2/3c. In the second medium the __________.

(frequency is still f and the wave length still λ, frequency is still f, but wavelength is 2/3 λ, the wavelength is still λ, but frequency is 2/3f, frequency is still f, but wavelenth is 3/2 λ)

29. Dolphins can communicate by emitting sounds of frequency 150,000 Hz. If speed of sound in water is 1500 m/s, the wavelength of these sounds will be __________.

(1 m, 0.1 m, 0.01 m, 0.001m)

30. The motion of the particles of air, when sound waves passes through it is __________.

(Period, Circular, Is an example of Brownian motion, Motion will constant acceleration)

31. Two stringed instruments are playing notes of the same pitch, __________ of the following must be same for these notes.

(Amplitude, Frequency, Length of String, quality)

32. A simple pendulum is performing simple harmonic motion (SHM) __________ of the following will remain constant through out its motion.

(Acceleration of the bob, Its amplitude, Force on the bob, Velocity of the bob)

33. For a system to execute S.H.M, its must possesses __________.

(Only elasticity, Only inertia, Elasticity as well as inertia, Neither elasticity nor inertia)

34. A spring of force constant k is broken into two equal parts, then the force constant of each part is __________.

($k/2$, $2k$, $k/\sqrt{2}$, k)

35. The SI unit for force constant are __________.

(N, Nm^{-1}, Nm^{-2},Nm)

36. Time period of a simple pendulum is T. It is kept in a lift, which is accelerating upward. The time period of the pendulum will __________.

(Increase, Decrease, Remain the same, First increase then decrease)

37. In the above question if the lift moves upwards with uniform velocity, its time period will __________.

(Increases, Decreases, Remain the same, Nothing can be said)

38. In the question number 36, the lift falls freely. They the time period will __________.

(Increase, Decrease, Remain the same, Become infinite)

39. A body is executing S.H.M of amplitude A. Its potential energy is maximum when it displacement is __________.

(Zero, $A/2$, A, $\pm A$)

40. Mass m is suspended from an elastic spring of spring constant k. The time period of small oscillation is __________.

($2\pi \sqrt{m/k}$, $2\pi \sqrt{2m/k}$, $2\pi \sqrt{k/m}$, $2\pi \sqrt{2k/m}$)

41. The dimensional formula for spring constant k is __________.

(MT^{-3}, MT^{-2}, $MLT^{-2}MT^{-1}$)

42. In resonance condition the amplitude of oscillation is __________.

(Very small, Small, Very large, Large)

43. The SI unit of force constant is identical to that of __________.

(Pressure, Energy, Surface Tension, Force)

44. If the oscillations are highly damped, the amplitude of oscillation __________.

(Decreases with time, Increases with time, Remains constant with time, First increases then decreases)

45. The time period of a simple pendulum at the centre of the earth is __________.

(Zero, Infinity, Unity, Same as thaht at the surface of the earth)

46. In S.H.M the maximum acceleration is α and maximum velocity is β, its time period is __________.

($2\pi\beta/\alpha$, $2\pi\alpha/\beta$, $\alpha/2\pi\beta$, $\beta/2\pi\alpha$)

47. In S.H.M the graph between force and displacement is __________.

(Parabolic, Hyperbolic, Exponential, Linear)

48. The tuning fork A is of a slightly higher frequency than a fork B. they are employed to produce beats. On loading the fork A the frequency of beats will __________.

(Increase, Decrease, Remain the same, become zero)

49. Beats are the result of __________.

(Diffraction, Constructive Interference only, Destructive Interference only, Constructive and Destructive Interference both)

50. The distance between two consecutive nodes of a stationary wave is __________.

(λ, $\lambda/2$, $\lambda/4$, $\lambda/6$)

51. The stem of a vibrating tuning fork is pressed against a tabletop. The duration of its vibration __________.

(Increase, Decrease, Remains unchanged, Becomes infinite)

52. In a simple harmonic motion we have the conservation of __________.

(Kinetic energy, Potential energy, Total energy, Electrical energy)

53. The velocity of longitudinal vibrations in a solid depends on its __________.

(Rigidity Modulus, Bulk Modulus, Young's Modulus, Poison's Ratio)

54. In a simple harmonic motion __________ is constant.

(K.E is constant, amplitude is constant, phase is constant, P.E is constant)

55. When beats are produced by two travelling waves of nearly the same frequency then __________.

(the particles vibrate simple harmonically with a frequency equal to the difference in the frequencies of the two waves, the amplitude of vibration at any point changes simple harmonically with a frequency equal to the difference in the frequencies of the two waves, The frequency of beats depends on the position, where the beats are heard, the frequency of beats decreases as the time is passing_

56. When beats are produced by two travelling waves of same amplitude and of nearly the same frequencies, then __________.

(The maximum loudness heard is two times thaht corresponding to each of the constituent waves, The amximum loudness heard is four times thaht corresponding to each of the constituent waves, The maximum loudness heard is the same as thaht of corresponding to each of the constituent waves, the maximum loudness heard is 8 times thath corresponding to each of the wave)

57. When beats are produced by two waves, $T_1 = a \sin 1000\pi t$ and $T_2 = a \sin 1008\,\pi t$ then __________ of the following gives the frequency of the beats heard.

(8π/sec, 8 /sec, 4/sec, 4π/sec)

58. When stationary waves are set up in a medium, __________ of the following statements is correct.

(Rarefaction occurs at the antinode, Compression takes place at all the nodes, no strain is felt at the antinodes, Maximum strain is felt at the antinodes)

59. When stationary waves are set then __________.

(All the particles of the medium are in same phase, particles separated by a distance of an amplitude out of phase, all the particles between two consective nodes are in phase, particles separated by a distance of an amplitude are always in phase)

60. When stationary waves are set up in a medium then __________.

(Energy is propagated at a rate double thaht of travelling waves of equal amplitude and of equal velocity, the flux of energy through any area is zero, the energy density is same throughout the space, the medium possesses no net energy)

61. When stationary waves are set up in a medium then __________.

(The amplitude of vibration changes simple harmonically with the distance of the particle from the origin, all particles are in the same phase, different particles of the medium have different periods of oscillation, amplitude of vibration of each particle changes simple harmonically with time)

62. When stationary waves are produced in a medium. The amplitude of vibration __________.

(of a particle changes from time to time, is the same for particles separated by half the wave length, changes simple harmonically with time, is the time for all the particles)

63. Two tuning forks A and B produce 7 beats per second, when sounded together. On loading the fork A slightly only 5 beats are heard in a second. If the frequency of fork B is 200 cps, the frequency of the fork A after loading will be __________.

(190 cps, 195 cps, 210 cps, 205 cps)

64. Two forks A and B produce 7 beats per second. On loading the fork A slightly the number of beats reduces to 5 beats per second. If the frequency of the fork B is 200cps. The frequency of the fork A before loading is __________.

(190 cps, 195 cps, 207 cps, 205 cps)

65. In stationary waves, the amplitude of vibration will have a maximum value at positions separated by a distance equal to __________.

(λ, $\lambda/2$, $\lambda/4$, $\lambda/3$)

66. In a transverse arrangement, a stretched string vibrates in two loops. If the same string under the same tension vibrates in one loop, the frequency in latter case divided by the frequency in former case will be __________.

(1, ½, 2, $\sqrt{2}$)

67. A source of sound wave moves away with the velocity of sound from a stationary observer. The frequency of the note is __________.

(Unchanged, Doubled, halved, squared)

68. The frequency of a man's voice is 200 cps and its wavelength is 2 m. If the wavelength of a child's voice is 4 m then the frequency of the child's voice in the same medium is __________.

(200, 25, 100, 400)

69. If the densities of two gases are in the ratio 25:9 then the velocities of sound in two gases (having the same value of ratio of specific heats) at the same pressure will be in the ratio __________.

(25 : 9, 5 : 3, 9 : 25, 3 : 5)

70. The ratio of the fundamental frequency of an organ pipe open at both ends to that of the organ pipe closed at one end is __________

(1 : 2, 2 : 1, 1.5 : 1, 1 : 1)

71. The velocity of longitudinal waves passing through metal rod is proportional to the square root of __________.

(Tension, Young's Modulus, Bulk Modulus, Rigidity)

72. The velocity of sound waves in fluid medium at absolute temperature T is directly proportional to __________.

(T, $T^{1/2}$, $T^{-1/2}$, T^{-1})

73. The velocity of transverse vibrations in sonometer under tension T is proportional to __________.

(T, $T^{1/2}$, $T^{-1/2}$, T^{-1})

74. Sound travels faster in __________.

(Air, Water, Vacuum, Glass)

75. When source of sound waves moves towards an observer at rest in the atmosphere, the pitch of the note heard by the observer is higher because __________.

(Wavelength of waves becomes smaller, Wavelength remains unchanged byt the observer receive a larger number of waves per second, The pitch of the source increases, The velocity of sound waves increases)

76. Sound waves cannot be __________.

(Reflected, Refracted, Diffracted, Polarized)

77. When a body travelling with supersonic speed approaches a stationary observer the __________.

(The pitch appears to increase, The pitch appears to decrease, The pitch is unaltered, doppler's effect is inapplicable)

78. When sound waves travel from air to water, the quantity that remains unchanged is __________.

(Speed, Frequency, Intensity, Wavelength)

79. Velocity of sound in a gas increases with __________.

(temperature, pressure, humidity, frequency)

80. When the pressure of the gas is doubled, the velocities of sound in it are __________.

(Doubled, halved, unaltered, squared)

81. When the temperature of a gas is increased to 4 times the velocity of sound V becomes __________.

(V/4, V/2, 2V, 4V)

82. Velocity of sound is __________.

(Directly proportional to temperature, Inversely proportional to temperature, Independent of changes in pressure, Independent of amount of humidity in air)

83. Sound waves in air are __________.

(Longitudinal, Transverse, Neither longitudinal nor transverse, both longitudinal and transverse)

84. At __________ temperature will be velocity of sound be double of its value at 0°C.

(819°C, 8190°C, 81.9°C, None of these)

85. In sonometer, the frequency of a sonometer wire is given by $n = 1/2L \sqrt{T/m}$. Where SI unit of the symbol m is __________.

(kg, kgm^{-1}, Nm^{-1}, kgm^{-2})

86. In a vibrating tuning fork, the waves produced between the prongs of the fork are __________.

(Progressive, Simple Harmonic, Stationary, Plane)

87. The SI unit for intensity of sound is __________.

(Joule, J/s, Jm^{-2}, Wm^{-2})

88. The dimensional formula for intensity is __________.

(MLT^{-2}, MLT^{-3}, $ML^{\circ}T^{-3}$, $ML^{\circ}T^{-2}$)

89. Stationary waves of frequency 165Hz are formed in air. If the velocity of sound waves is 330m/s, the shortest distance between two nodes is __________.

(1m, 2m, 4m, Zero)

90. Production of beats is a result of the phenomenon of __________.

(Resonance, Interference, Reflection, Diffraction)

91. As a result of interference, energy __________.

(Is lost, is gained, is transmitted, remaisn unchanged as a whole but is distributed)

92. A rope can carry a transverse wave because it has the property of __________.

(Mass, elasticity, density, compressibility)

93. The pitch of the whistle of an engine changes in the ratio of 6 : 5 as it approaches a stationary observer. If v is the velocity of sound waves, the velocity of the engine is __________.

(v, v/3, v/5, v/11)

94. The speed of wave in a rope can be increased by __________.

(Shaking the end faster, shakeing the end over a under range, stretching the rope tighter, using a heavier rope)

95. Doppler's effect applies to __________.

(Onkly sound waves, only light waves, both sound and light waves, neither sound nor light waves)

96. The distance from crest to crest of any wave is called its __________.

(Frequency, Wavelength, Speed, Amplitude)

97. Sound travels fastest in __________.

(Air, Water, Iron, Vacuum)

98. When source and observer are moving away from each other the apparent pitch will __________.

(Increase, Decrease, Remain same, Become infinite)

99. __________ of the following is the SI unit of frequency.

(Hertz, cycles/sec, netwon, erg)

100. For a closed pipe, the second overtone is the __________.

(Second harmonic, Third harmonic, Fourth harmonic, Fifth harmonic)

101. A wave in which the particles of the material move up and down as the wave goes from left to right is classed as __________.

(Longitudinal, Transverse, Compressional, Sound)

102. As a man move directly away from a steady source of sound at constant speed, the sound he hears will __________.

(Increase in frequency and intensity, decrease in frequency and intensity, stay constant in pitch but decrease in loudness, remain constant in both pitch and loudness)

103. Decibel is __________.

(A musical instrument, musical note, a measure of intensity level, the wavelength of noise)

104. Increased loudness produced when two bodies vibrate sympathetically is called __________.

(An echo, beats, destructive interference, resonance)

105. Damping is a __________.

(Reduction in frequency, Reduction in wavelength, reduction in amplitude, All of these)

106. Wavelength is the distance between two nearest particles of the medium having phase difference __________.

($\pi/4$, $\pi/2$, π, 0)

107. At the mean position of vibration, the velocity of the vibrating particle is __________.

(Zero, Infinity, Maximum, None of these)

108. The pitch of a sound is determined by its __________.

(Speed, Frequency, Direction, Number of beats)

109. When the soldiers corss a bridge, they are advised to march out of step due to the __________.

(Resonance, High frequency, Noise produced, Fact thath bridge is weak)

110. A pulse on a string is inverted when it is reflected from a __________.

(free end, fixed end, both free and fixed end, none of these)

111. When two vibrating systems are in resonance, then their __________.

(Amplitude are equal, Frequencies are equal, Resistances are equal, Temperatures are equal)

112. Sounds above a frequency of 20000 Hz are called __________.

(Supersonic, infrasonic, hypersonic, ultrasonic)

113. When waves go from one place to another, they transport __________.

(Amplitude, Frequency, Wavelength, Energy)

114. Transverse waves are traveling along string, when the tension is increased to four times its original value, the velocity of the waves is __________.

(Doubled, reduced to one half, reduced to one fourth, increased to four times its original value)

115. To produce beats it is necessary to used two waves __________.

(traveling in opposite direction, of slightly different frequencies, of equal wavelength, of equal amplitude)

116. The amplitude of sound wave determines its __________.

(Loudness, Pitch, Reverberation, Interference)

117. Overtones are __________.

(Beats, the fundamental produced in a pipe, the notes produced in a pipe other than the fundamental, all of these)

118. Two tuning forks of 340 and 343 Hz are sounded together. The resulting beats per second will be __________.

(1, 2, 3, 4)

119. The speed of sound waves in air having a frequency of 256 Hz compared with the speed of sound waves having a frequency of 512 Hz is __________.

(half as great, the same, twice as great, four times as great)

120. The apparent change in frequency due to a relative motion between the source and the observer is known as __________.

(Laplace's Priciple, Sabine's Principle, Newtonian's Principle, Doppler's Principle)

121. If E is the coefficient of volume elasticity (Bulk Modulus) of the medium and δ its density, then the velocity of a longitudinal wave in fluid is given by __________.

($v = E/P$, $v = \sqrt{E}/\delta$, $v = P/E$, $v = \sqrt{P}/E$)

122. We know that the velocity of sound obtained from Newton's formula is much less than the experimental value. The reason for this is __________.

(Sound travels in air under isothermal conditions, soundtravels in air under adiabatic conditions, sound travels in air as a transverse wave motion, none of these is correct)

123. Velocity of sound as given by Laplace is __________.

($v = \sqrt{\gamma}\rho/\delta$, $v = \rho\sqrt{\gamma}/\delta$, $v = \gamma\rho/\delta$, $v = \gamma\sqrt{\rho}/\delta$)

124. It is possible to recognize a person by hearing his voice even if he is hidden behind a solid wall. This is due to the fact that his voice __________.

(has a definite pitch, has a definite quality, has a definite capacitor, can penetrate the wall)

125. Two waves arrive simultaneously at a point in phase. The disturbance, at the point, due to each wave is 2.5 mm and 3.5 mm respectively the resultant disturbance is __________.

(2.5 mm, 6 mm, 3.5 mm, 1mm)

126. Successive nodes or antinodes occur at points, separation between which is __________.

($\lambda/4$, $\lambda/2$, $3\lambda/4$, λ)

127. The period of pendulum is determined by its __________.

(Length, Mass, Maximum Speed, Amplitude)

128. Red shift indicates the __________.

(Aproach of a star, Recession of a star, Stationary State of a Star, Size of a star)

Chapter 9

Wave Aspect of Light

1. Light waves __________.

(Require air or another gas to travel through, require an electric field to travel through, require a magnetic field to travel through, can travel through a perfect vacuum)

2. The blue colour of the sky is due to due to fact that __________.

(Red light is absorbed, blue colour is preferentially scattered, red light is preferentially scattered, this is the natureal colour)

3. The wavelength 10000 A° belong to __________.

(Infra red spectrum, Ultra violet spectrum, visible range, green light)

4. Monochromatic green light has a wavelength of 520 nm in air. The wavelength of this light inside glass of refractive index 1.5 is approximately.

(300nm, 340nm, 520nm, 780nm)

5. The property of light waves thath leads to the phenomenon of colour is their __________.

(Velocity, Amplitude, Quality, Wavelength)

6. If Plank's constant h = 6.625×10^{-34} J/Hz. The energy associated with light with a wavelength of 160nm is __________.

(1.24×10^{-18} J, 1.88×10^{-18} J, 1.24×10^{-15} J, 1.24×10^{-15} J)

7. __________ proposed electromagnetic wave theory.

(Fresnel, Huygen, Maxwell, Fraunhoffer)

8. Two light waves meet at time when one has the instantaneous amplitude A and the other has the instantaneous amplitude B. Their combined amplitude is __________.

(A + B, between A + B and –(A + B), A – B, Indeterminate)

9. Maxwell based his theory of electromagnetic waves on the hypothesis that a changing electric field gives rise to __________.

(An electric current, stream of electrons, A magnetic field, longitudinal waves)

10. __________ of the following phenomenon cannot be explained by the wave theory of light.

(Refraction, Interference, Photoelectric, Polarization)

11. In the complete electromagnetic spectrum __________ of the following has least frequency.

12. The number of fringes passing through a reference point, if the moveable mirror of Michlson's interferometer is moved by 0.08 mm, when the wavelength of light used is 5800 A°, are __________.

(275, 276 250, 2.75)

13. __________ of the following demonstrates the transverse nature of light waves.

(Interference, Polarization, Diffraction, Refraction)

14. The locus of all points in the same state of vibrations is known as __________.

(Half period zone, a half wave zone, a wave front, none of thse)

15. __________ is invalid for a photon.

(Its mass is h^2v^2, it has zero rest mass, all its energy is K.E, its momentum is hν/c)

16. __________ of the following is not a property of light waves.

(they transfer energy from one place to another, They can travel through vacuum, They are transverse waves, They travel at the same speed through glass and water)

17. The phenomenon of interference of light was first demonstrated by __________.

(Newton, Einstein, Thomas Young, Michelson)

18. __________ of the following is not associated with light waves.

(Transmission of energy, Interference, Diffraction, Longitudinal Vibrations)

19. Formation of colour in a thin film of oil is due to __________.

(Interference of light waves, diffraction of light waves, Scattering of light rays, Dispersion of light rays)

20. Newton's rings are formed due to the phenomenon of __________.

(Reflection, Refraction, Diffraction, thin film interference)

21. Interferometer measures __________.

(Velocity of light in gases, wavelength of monochromatic light, thickness of very thin objects, illuminating power of light)

22. __________ of the following is not true for interference of light.

(The two waves should be of same amplitude, the two waves should be phase coherent, the two waves should travel in the opposite direction through the medium, the two waves should be monochromatic)

23. Two monochromatic waves of same wavelength are travelling through a medium. They can interfere destructively. Provided their path difference is __________.

(2λ, λ, $5/2\ \lambda$, 5λ)

24. Double slit arrangement is suggested by Young in order to obtain __________.

(monochromatic light, phase coherence, constructive interference, destructive interference)

25. In Young's double slit arrangement, the bright fringes obtained are __________.

(Of uniform intensity, of non uniform width, coloured, circular)

26. For constructive interference the path difference should be __________.

(Zero or integral multiple of wavelength, only integral multiple of wavelength, zero or multiple of wavelength, odd multiple of wavelenght)

27. The two light waves can interference destructively if __________.

(They reach a point in phase, they reach a point out of phase by π radian, they are traveling through a medium in opposite direction, none of these is true)

28. Newton’s rings can be obtained by using a __________.

(Plano convex lens of small focal length, plano convex lens of very large focal length, concave lens of large focal length, flat glass slab)

29. In Newton’s rings the central angle is __________.

(Always bright, always dark, can be bright or dark, of blue colour)

30. The conditions for the production of constructive and destructive interference are reversed due to the fact that on striking the thin film __________.

(Two rays of splitted light under go phase change of 180°, One of two rays of splitted light undergo phase change of 180°, light is diffracted, light is polarized)

31. When electromagnetic waves strike the boundary of denser medium they are __________.

(Reflected, in phase, Reflected out of phase by 180°, reflected, they are completely abosrbed)

32. In Michelson interferometer semi silvered mirror is used to obtain __________.

(Thin film interference, Phase coherence, mono chromatic light, coloured fringe)

33. Diffraction is special type of __________.

(Reflection, Refraction, Interference, Polarization)

34. Fresnel’s type diffraction is observed when __________.

(Only screen is placed at finite distance, Only source is placed at finite distance, Both source and screen are at finite distance, Neither source nor screen is at finite distance)

35. Fraunhoffer’s diffraction is observed when __________.

(Only screen is placed at finite distance, souce is placed at finite distance, neither source nor screen is at finite distance)

36. In Fraunhoffer’s diffraction wave front used is __________.

(Spherical, Circular, Plane, Conical)

37. In diffraction pattern of monochromatic light the bright bands formed are __________.

(Of uniform intensity, of non-uniform intensity, of uniform width, are of different colours)

38. The points of constructive interference of light are __________.

(Always bright, may be bright or dark, always dark, neither bright nor dark)

39. The diffraction observed by diffraction grating can also be termed as __________.

(Single slit diffraction, Double slit Diffraction, Multiple Slit Diffraction, Fresnel's Diffraction)

40. The grating used to observe, diffraction of visible light can have approximately __________.

(300 lines per cm, 3000 lines per cm, 15000 lines per cm, 30 lines per cm)

41. X-ray diffraction can be observed by using __________.

(Diffraction Grating, Rock salt crystal, Convex lens, Michlsons's interferometer)

42. The phenomenon of Newton's rings can be used to check the __________.

(Wavelength of monochromatic light, phase coherence of two sources, flatness of any glass surface, velocity of light)

43. Two sources of light are said to be coherent if __________.

(they produce waves of the same wave length, they have the same amplitude of vibration, they produce waves in the medium simultaneously, they produce waves of the same amplitude)

44. As the order increases, the width of a dark band in diffraction patterns __________.

(Increases, Decreases, Does not change, becomes infinity)

45. The path difference corresponding to a phase difference of π radian is __________.

(2λ, $\lambda/2$, $\lambda/4$ λ)

46. __________ of the following phenomenon can not be explained on the particle nature of light.

(Photo Electric Effect, Compton's Effect, Pair Production, Interference)

47. Fringe spacing is defined as the distance between two consecutive __________.

(Crests, Bright fringes only, Dark fringes only, Bright or dark fringes)

48. If we narrow the distance between two slits in Young's experiment the fringes width __________.

(Increases, Decreases, Remains same, becomes zero)

49. When Newton's rings interference pattern is viewed from above by means of reflected light, the central spot is __________.

(Dark, Multicoloured, Bright, None of these)

50. There are two types of diffraction Fresnel and __________.

(Michelson, De Broglie, Fraun Hofer, Huygens)

Chapter 10

Geometrical Choice

1. A lens is a piece of transparent material that can focus __________.

(transmitted bean of light, reflected beam of light, none of these)

2. A lens is usually bounded by __________.

(two spherical surfaces, two plane surfaces, spherical and plane surfaces)

3. Basically lenses fall into __________.

(One category, two categories, three categories)

4. A convex lens is __________.

(thicker in the middle and thinner on the edge, thinner in the middle and thicker on the edge, none of these)

5. A convex lens __________.

(converges the light rays towards its optical centre, diverges the light rays towards its optical axis, none of these)

6. A concave lens __________.

(thinner in the middle and thicker on the edges, thicker in the middle and thinner on the edges, none of these)

7. A concave lens bends the light rays from __________.

(Its optical axis, Its optical centre, None of these)

8. The point to which the light rays are brought to focus is called __________.

(Principle Focus, Optical Axis, none of the above)

9. The distance between the optical centre of the lens and its principal focus is called its __________.

(Focal length, Radius of curvature, none of these)

10. The point in the lens through which the light rays will pass without any deviation is called its __________.

(Optical centre, Optical axis, Principal axis)

11. In convex lens when the object is placed beyond 2F then its image will form __________.

(at 2F on the other side, in between F and 2F on the other side, beyond 2F on the other side)

12. In converging lens when the object is placed within its focal length then the image will form __________.

(At its principal focus on the other side, on the same side where the object is placed, none of these)

13. In convex lens the image distance is taken as positive for __________.

(Real image, Virtual image, none of these)

14. The relation between the focal length and the power of a lens is that __________.

(they are reciprocal to each other, they are inversely proportional to each other, none of these)

15. The use of a single converging lens is such a position when the object is placed within its focal length is called __________.

(Magnifying glass, Compound Microscope, none of these)

16. In order to get higher magnification by magnifying glass, the lens used is of __________.

(short focal length, long (large) focal length, none of these)

17. If the focal length of the lens is 10 cm then its power in diopter is __________.

(1, 5, 10)

18. The power of the lens is 2 diopter then its focal length is __________.

(25cm, 50cm, 75 cm,)

19. The focal length of the magnifying glass is 5 cm then its magnification is __________.

(6, 2, 1)

20. If the focal length of a diverging lens is 6cm and the object is placed at 12 cm from it then image formed at a distance of __________.

(-2, -4, -6)

21. If the magnification of the lens is 6 and the image distance is 24cm then the object distance is __________.

(2cm, 4cm, 6cm)

22. In compound microscope the final image formed is __________.

(Virtual and diminished, real and magnified, virtual and magnified)

23. In compound microscope the objective will form a image which is __________.

(Virtual and magnified, Real and Diminished, Real and magnified)

24. The objective of the astronomical telescope will form an image with is __________.

(Virtual and magnified, real and magnified, real and diminished)

25. The Galilean telescope consists of __________.

(Single lens, Two lenses, three lenses)

26. In Galilean telescope the final image is __________.

(Real and magnified, Virtual and magnified, Real and diminished)

27. The magnifying power of the terrestrial telescope is the same as __________.

(Magnifying glass, compound microscope, astronomical telescope)

28. The length of the astronomical telescope, which is focussed for infinity, is __________.

(Fo – Fe, Fo + Fe, None of these)

29. An astronomical telescope has the magnifying power 100 and focal length of eyepiece is 4 cm, then the focal length of the objective is __________.

(40cm, 400cm, 25cm)

30. The length of the Galilean telescope is given by __________.

(Fo – Fe, Fo + Fe, None of these)

31. A telescope has an objective of focal length 60 cm and eyepiece of focal length 3 cm then its magnifying power is __________.

(2, 20, 180)

32. If the astronomical telescope has an objective of focal length 90 cm and the focal length of the eyepiece is 10 cm, then length of the telescope is __________.

(9cm, 100cm, 80cm)

33. A Galilean telescope has an objective of focal length 25 cm and an eye piece of focal length 10 cm then its length is given as __________.

(35cm, 15cm, 250cm)

34. A Galilean Telescope has an objective of focal length 25cm and an eyepiece of focal length 5cm then its magnifying power is __________.

(5, 30, 125)

35. The instrument, which is used to study the spectrum of luminous bodies, is called __________.

(Spectrometer, Compound microscope, Polarimeter)

36. Collimeter, telescope and turntable are the parts of __________.

(Compound Microscope, Polarimeter, Spectrometer)

37. The part of the spectrometer named as collimeter consists of a __________.

(Converging lens, Diverging lens, none of these)

38. The spectrometer is an analysing instrument used primarily to discover and measure the __________.

(Speed of light, Wavelength of light, Frequency of light)

39. The spectrum of light, which shows band instead of lines, is called __________.

(Continuous spectrum, line spectrum, band spectrum)

40. The front of the eye is covered by a transparent membrane called __________.

(Cornea, Retina, none of these)

41. The abnormality myopia can be corrected by using __________.

(Converging lens, Diverging lens, None of these)

42. The abnormality hyperopia can be corrected by using a __________.

(Converging lens, Diverging lens, none of these)

43. Under normal condition the human eye is most sensitive for __________.

(Red light, Yello-green light, Blue light)

44. The power of the lens is measured in __________.

(Centimeter, meter, diopter)

45. The iris controls the __________.

(Wavelength of the light entering in the eye, Speed of the light entering in the eye, Amount of the light entering in the eye)