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## 1st Year Physics Multiple Choice Questions

### 1st Year Physics Notes

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# 1 (permalink)

**Tanha Karim**

Mind Reader

**ADMINISTRATOR**



Join Date: May 2009  
Location: Karachi  
Age: 25  
Posts: 34,638

Country:

1st Year Physics Multiple Choice Questions

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#### 1st Year Physics Multiple Choice Questions

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#### 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 \_\_\_\_\_.  
(17th century, 18th century, 19th 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 and 171, 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-Haitham, 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. 20th century is called the century of \_\_\_\_\_.  
(Physics, Chemistry, Mathematics)
16. Dimension of acceleration is \_\_\_\_\_.  
(LT-1, LT-2, L-1T)
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 \_\_\_\_\_.  
(L2, L-2, L3)
26. The dimension of velocity is \_\_\_\_\_.  
(LT-2, L-1L2, LT-1)
27. The dimension of linear momentum is \_\_\_\_\_.  
(MLT-1, ML-1T, M-1LT)
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<sup>3</sup>, 38.49cm<sup>3</sup>, 179.62cm<sup>3</sup>)
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)

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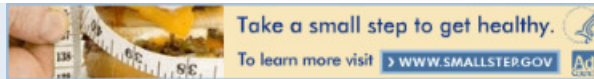
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# 2 (permlink)

**Tanha Karim**

Mind Reader

**ADMINISTRATOR**



Join Date: May 2009  
Location: Karachi  
Age: 25  
Posts: 34,638

Country:  

Re: 1st Year Physics Multiple Choice Questions

#### 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, opposite to, parallel to itself)

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

(same as, opposite 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 q, A sin q, A tan q)

30. The vertical component of vector is given by \_\_\_\_\_.

(Acosq, Asinq, 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 \_\_\_\_\_.

( $90^\circ$ ,  $0^\circ$ ,  $180^\circ$ )

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

( $0^\circ$ ,  $45^\circ$ ,  $90^\circ$ )

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)



03-17-2010, 10:45 AM

# 3 (permalink)

**Tanha Karim**  
Mind Reader

**ADMINISTRATOR**



Join Date: May 2009  
Location: Karachi  
Age: 25  
Posts: 34,638



Re: 1st Year Physics Multiple Choice Questions

### 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, Instantaneous 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 know 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<sup>2</sup> 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/s<sup>2</sup> (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  $9.8 \text{ m/s}^2$ )

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

(0.5, 0.66, 2)

19. During a stop a car comes to rest from a speed of  $10 \text{ m/s}$  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  $15 \text{ m/s}$ . 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  $1.0 \text{ m/s}^2$  is \_\_\_\_\_.

(1N, 10N, 100N)

24. If a stone falls from rest with a uniform acceleration of  $10 \text{ m/s}^2$  (approximately) then \_\_\_\_\_.

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

25. The frictionless trolley is moving horizontally at  $30 \text{ m/s}$ . It is then accelerated uniformly in the same direction at  $0.5 \text{ m/s}^2$  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  $40 \text{ m/s}$  and the other half at  $50 \text{ m/s}$ . 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  $40 \text{ m/s}$  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  $10\text{m/s}^2$  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  $8\text{ m/s}$ . After moving  $4\text{m}$  its velocity is  $12\text{ m/s}$ . The acceleration is \_\_\_\_\_  $\text{m/s}^2$ .

(10, 100, 4)

32. A body starting from rest travels  $120\text{ m}$  in 8th second. Assuming the motion to be uniform, its acceleration is \_\_\_\_\_  $\text{m/s}^2$ .

(15, 16, 10)

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

(10m, 5m, 15m)

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

(Average acceleration, Instantaneous Acceleration, Uniform Acceleration)

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 \_\_\_\_\_.

(Constant Speed, Constant Velocity, Constant Acceleration)

39. The direction of tension in string will always be 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  $g = 10\text{m/s}^2$ )

(100N, 9.8 N, 980 N)

41. In elastic collision between the two bodies \_\_\_\_\_.

(Only momentum 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 momentum 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  $\theta$  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 reach the ground earlier, both 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)



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# 4 (permalink)

Tanha Karim  
Mind Reader

ADMINISTRATOR



Join Date: May 2009  
Location: Karachi  
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Re: 1st Year Physics Multiple Choice Questions

## 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, Projectile, 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 \_\_\_\_\_.  
( $V \sin q/g$ ,  $2V \sin q/g$ ,  $V \sin q/2g$ )
13. The expression for the total time of flight of the projectile is \_\_\_\_\_.  
( $V \sin q/g$ ,  $2V \sin q/g$ ,  $V \sin q/2g$ )
14. The expression for maximum height reached by the projectile is \_\_\_\_\_.  
( $V_0^2 \sin^2 q/g$ ,  $V \sin^2 q/2g$ ,  $V_0^2 \sin^2 q/2g$ )
15. The expression for the horizontal range of the projectile is \_\_\_\_\_.  
( $V_0^2 \sin 2q/g$ ,  $V \sin 2q/g$ ,  $V_0^2 \sin 2q/2g$ )
16. The expression for the maximum range of the projectile is \_\_\_\_\_.  
( $V_0^2/g$ ,  $V \sin 2q/2g$ ,  $V \sin q/2g$ )
17. For the maximum range of the projectile the angle of elevation must be \_\_\_\_\_.  
( $0^\circ$ ,  $45^\circ$ ,  $90^\circ$ )
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  $90^\circ$  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  $15^\circ$  then its range will be the same when the angle of elevation is equal to \_\_\_\_\_.

( $30^\circ$ ,  $45^\circ$ ,  $75^\circ$ )

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 \_\_\_\_\_.

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

30. If a shell is fired with the velocity of 9.8 m/s at an angle of  $45^\circ$  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 \_\_\_\_\_.

( $60\text{m/s}$ ,  $6.67, 20\text{ m/s}$ )

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

( $20^\circ$ ,  $45^\circ$ ,  $60^\circ$ )

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  $55^\circ$  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)

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

( $3130.5\text{ m/s}$ ,  $313.5\text{ m/s}$ ,  $31.35\text{ m/s}$ )

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 ( $q$ ) displacements is given by \_\_\_\_\_.

( $s = rq$ ,  $s = r/q$ ,  $q = sr$ )

43. In the relation  $s = rq$ ,  $q$  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 \_\_\_\_\_.  
( $2\pi$  rad,  $\pi/2$  rad,  $4\pi$  rad)
48. 1 radian is equal to \_\_\_\_\_.  
( $2\pi$  revolution,  $\pi/2$  rad,  $\pi/2$  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 ( $\omega$ ) 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 \_\_\_\_\_.  
( $\text{deg/s}^2$ ,  $\text{m/s}^2$ ,  $\text{rad/s}^2$ )
55. The relation between linear acceleration (a) and angular acceleration ( $\alpha$ ) of a particle is given by \_\_\_\_\_.  
( $a = r\alpha$ ,  $a = a/r$ ,  $a = ar$ )
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 these)
68. A car is travelling at a constant speed of 20m/s rounds a curve of radius 100m. What is its acceleration.  
( $2\text{m/s}^2$ ,  $3\text{m/s}^2$ ,  $4\text{m/s}^2$ )
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 four times than its initial value)

70. When an object moves round the circular track, the centripetal force is provided by \_\_\_\_\_  
 \_\_\_\_\_.  
 (Force of Gravity, Fictitious Force, Frictional Force)



03-17-2010, 10:45 AM

# 5 (permalink)

**Tanha Karim**  
 Mind Reader

**ADMINISTRATOR**



Join Date: May 2009  
 Location: Karachi  
 Age: 25  
 Posts: 34,638



Re: 1st Year Physics Multiple Choice Questions

### 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 \_\_\_\_\_.  
 ( $M^1L^2T^{-2}$ ,  $M^1L^2T^{-1}$ ,  $M^1L^2T^0$ )
10. The unit of moment of inertia in 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  $T =$  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 point of 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 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 greatest 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<sup>2</sup> respectively, N-m<sup>2</sup> and N-m respectively, 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 force of gravity on the object, The point about which the object rotates, The point at which the total weight of the objects acts)

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26. The centre of gravity of a body of 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 is called angular momentum. They are connected by relation \_\_\_\_\_.

()

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 (I) and angular velocity ( $\omega$ ) 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 inertia 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<sup>-1</sup>, MLT<sup>-2</sup>, ML<sup>2</sup>T<sup>-1</sup>)

38. The SI of angular momentum is \_\_\_\_\_.

(kgmsec<sup>-1</sup>, kgm<sup>2</sup>sec<sup>-2</sup>, kgm<sup>2</sup>sec<sup>-1</sup>)

39. The turning effect of a force is called \_\_\_\_\_.  
(Acceleration, Torque, Velocity)
40. If  $q$  is the angle between force and displacement vectors then the physical quantity torque is mathematical expressed as \_\_\_\_\_.  
( $C = rF\sin q$ ,  $C = Fr\cos q$ ,  $C = Fr\sin q$ )
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 \_\_\_\_\_.  
( $0^\circ$ ,  $45^\circ$ ,  $60^\circ$ )
45. The first condition 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 may 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)



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# 6 (permalink)

Tanha Karim

Mind Reader

ADMINISTRATOR



Join Date: May 2009  
Location: Karachi  
Age: 25  
Posts: 34,638

Country:  

Re: 1st Year Physics Multiple Choice Questions

## 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 \_\_\_\_\_.  
( $4.9 \text{ m/s}^2$ ,  $19.6 \text{ m/s}^2$ ,  $2.45 \text{ m/s}^2$ )
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 \_\_\_\_\_.  
( $4.9 \text{ m/s}^2$ ,  $19.6 \text{ m/s}^2$ ,  $2.45 \text{ m/s}^2$ )
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 planet, Can be directly verified in the laboratory, 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 ( $g$ ) =  $10\text{m/s}^2$ . The lift is \_\_\_\_\_.  
(Ascending at  $1\text{m/s}^2$ , At rest, Descending at  $1\text{m/s}^2$ )
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 \_\_\_\_\_.  
( $6.673 \times 10^{-11} \text{ N-m}^2 / \text{kg}^2$ ,  $7.673 \times 10^{-11} \text{ N-m}^2 / \text{kg}^2$ ,  $8.673 \times 10^{-11} \text{ N-m}^2 / \text{kg}^2$ )
22. The dimensions of gravitational constant are \_\_\_\_\_.  
( $L^3M^{-1}T^{-2}$ ,  $L^2M^2T^{-1}$ ,  $LM^{-2}T^{-2}$ )
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23. The approximate value of the average density of the earth is \_\_\_\_\_.  
( $5.5 \times 10^3 \text{ kg /m}^3$ ,  $6.5 \times 10^3 \text{ kg /m}^3$ ,  $7.5 \times 10^3 \text{ kg /m}^3$ )
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 \_\_\_\_\_.  
( $2.272 \times 10^{-3} \text{ m/s}^2$ ,  $2.272 \times 10^3 \text{ m/s}^2$ , None of these)
26. The value of orbit radius of the moon is about \_\_\_\_\_.

- ( $3.84 \times 10^8$  m,  $3.84 \times 10^5$  m,  $3.84 \times 10^3$  m)
27. The time taken by the moon to complete one revolution around the earth is \_\_\_\_\_.  
( $2.36 \times 10^6$  seconds,  $2.36 \times 10^4$  seconds,  $2.36 \times 10^8$  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 \_\_\_\_\_.  
( $6.673 \times 10^{-8}$  N,  $6.673 \times 10^{-11}$  N,  $6.673 \times 10^{-7}$  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<sup>2</sup>,  $4.9$  m/s<sup>2</sup>,  $2.45$  m/s<sup>2</sup>)
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 \_\_\_\_\_.  
( $1.414 R_e$ ,  $2R_e$ ,  $0.5R_e$ )
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<sup>2</sup>, then the weight of the person as measured by him in the elevator is \_\_\_\_\_.  
( $340$  N,  $440$  N,  $540$  N)
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<sup>2</sup> downward,  $9.8$  m/s<sup>2</sup> upward, none of these)
36. The earth traverses its circular orbit in  $3.15 \times 10^7$  seconds, orbiting at an orbital velocity of  $2.9 \times 10^4$  m/s, then its orbit radius is \_\_\_\_\_.  
( $1.45 \times 10^{11}$  m,  $1.45 \times 10^8$  m,  $1.45 \times 10^6$  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 \_\_\_\_\_.  
( $1/2p \sqrt{g/R}$ ,  $2p \sqrt{g/R}$ ,  $1/2p \sqrt{R/g}$ )
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  $10$ kg is \_\_\_\_\_.  
( $6.67 \times 10^{-8}$  m/s<sup>2</sup>,  $6.67 \times 10^{-11}$  m/s<sup>2</sup>,  $6.67 \times 10^{-10}$  m/s<sup>2</sup>)
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 \_\_\_\_\_.  
( $4p^2R/T^2$ ,  $4pR/T^2$ ,  $4p^2R/T$ )



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# 7 (permalink)

Tanha Karim  
Mind Reader

ADMINISTRATOR



Join Date: May 2009  
Location: Karachi  
Age: 25  
Posts: 34,638



Re: 1st Year Physics Multiple Choice Questions

## Chapter 7 - Work, Energy 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, Negative, 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 \_\_\_\_\_.  
( $1.6 \times 10^{-19}\text{J}$ ,  $1.6 \times 10^{-18}\text{J}$ ,  $1.6 \times 10^{19}\text{J}$ )
  8. One joule is equal to \_\_\_\_\_.  
(103erg, 107erg,  $10^{-3}\text{erg}$ )
  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  $D_{di}$  is small, where  $D_{di}$  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 \_\_\_\_\_.  
( $P \cdot t$ ,  $P/t$ ,  $F/A^2$ )
  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  $45^\circ$  with the floor, Making an angle of  $90^\circ$  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  $Dt$ . The work he did, depends upon \_\_\_\_\_.  
(Mass of the block, time, none of these)
  23. The unit of power is \_\_\_\_\_.  
(watt-hour, Joule-second,  $\text{N-m/s}$ )
- @import "/extensions/GoogleAdSense/GoogleAdSense.css";
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 \_\_\_\_\_.  
( $E = mc$ ,  $E = mc^2$ ,  $E = m2c$ )
29. 1 kilowatt hour is equal to \_\_\_\_\_.  
( $3.6 \times 10^6 \text{ J}$ ,  $6.3 \times 10^6 \text{ J}$ , 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 \_\_\_\_\_.  
( $\text{ML}^2\text{T}^{-2}$ ,  $\text{MLT}^{-2}$ ,  $\text{ML}^2\text{T}^{-1}$ )
32. The dimensions of energy are \_\_\_\_\_.  
( $\text{ML}^2\text{T}^{-2}$ ,  $\text{MLT}^{-2}$ ,  $\text{ML}^2\text{T}^{-1}$ )
33. The dimensions of power are \_\_\_\_\_.  
( $\text{ML}^2\text{T}^{-2}$ ,  $\text{ML}^2\text{T}^{-3}$ ,  $\text{ML}^3\text{T}^{-2}$ )
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)



03-17-2010, 10:46 AM

# 8 (permalink)

**Tanha Karim**  
Mind Reader

Re: 1st Year Physics Multiple Choice Questions

## ADMINISTRATOR

## Chapter 8 - Wave Motion and Sound



Join Date: May 2009  
Location: Karachi  
Age: 25  
Posts: 34,638



- 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 =  $-kx^2$ )
- 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 =  $k(x^2-a^2)$ )
- 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 \_\_\_\_\_.  
( $T$ ,  $2T$ ,  $\sqrt{2}T$ ,  $T/2$ )
- 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 \_\_\_\_\_.  
( $T$ ,  $2T$ ,  $\sqrt{2}T$ ,  $T/2$ )
- \_\_\_\_\_ 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)
- 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)

- The motion of the simple pendulum is \_\_\_\_\_.  
(Always simple harmonic, may be simple harmonic, can never be simple harmonic, circular)
- A body is executing S.H.M if \_\_\_\_\_.  
(Its acceleration is proportional to displacement and directed away from mean position, Its acceleration is proportional to displacement and directed towards mean position, Its acceleration is zero, none of these)
- 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 possesses maximum potential energy)
- 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)
- 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)
- 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 \_\_\_\_\_.  
( $\frac{1}{2} k(x^2-a^2)$ ,  $\frac{1}{2} kx^2$ ,  $\frac{1}{2} k(a^2-x^2)$ ,  $A(k/m)$ )
- A simple pendulum is performing S.H.M with period  $T$ . If its length is doubled. The new time period will be \_\_\_\_\_.  
( $2T$ ,  $0.5T$ ,  $2.5T$ ,  $1.414 T$ )
- If we increase the length of simple pendulum its time period will \_\_\_\_\_.  
(Increase, Decrease, Remain same, becomes infinite)
- 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)
- 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)
- 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,  $\pi$  rad/s,  $2\pi$  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,  $\frac{1}{2}f$ , 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 l and speed c, the waves passes from this medium to another where its speed is  $\frac{2}{3}c$ . In the second medium the \_\_\_\_\_.  
(frequency is still f and the wave length still l, frequency is still f, but wavelength is  $\frac{2}{3}l$ , the wavelength is still l, but frequency is  $\frac{2}{3}f$ , frequency is still f, but wavelength is  $\frac{3}{2}l$ )
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. 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 its 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 that at the surface of the earth)
46. In S.H.M the maximum acceleration is  $a$  and maximum velocity is  $b$ , its time period is \_\_\_\_\_.  
( $2\pi b/a$ ,  $2\pi a/b$ ,  $a/2\pi b$ ,  $b/2\pi a$ )
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 \_\_\_\_\_.  
( $l$ ,  $l/2$ ,  $l/4$ ,  $l/6$ )
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, Poisson'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 that corresponding to each of the constituent waves, The maximum loudness heard is four times that corresponding to each of the constituent waves, The maximum loudness heard is the same as that of corresponding to each of the constituent waves, the maximum loudness heard is 8 times that corresponding to each of the waves)
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.  
(8p/sec, 8 /sec, 4/sec, 4p/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 consecutive 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 that 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 \_\_\_\_\_.

(1, 1/2, 1/4, 1/3)

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,  $\frac{1}{2}$ , 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)

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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 by 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  $0^\circ\text{C}$ .

( $819^\circ\text{C}$ ,  $8190^\circ\text{C}$ ,  $81.9^\circ\text{C}$ , 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,  $\text{kgm}^{-1}$ ,  $\text{Nm}^{-1}$ ,  $\text{kgm}^{-2}$ )

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,  $\text{J/s}$ ,  $\text{Jm}^{-2}$ ,  $\text{Wm}^{-2}$ )

88. The dimensional formula for intensity is \_\_\_\_\_.

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

89. Stationary waves of frequency  $165\text{Hz}$  are formed in air. If the velocity of sound waves is  $330\text{m/s}$ , 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, remain 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, shaking the end over a under range, stretching the rope tighter, using a heavier rope)

95. Doppler's effect applies to \_\_\_\_\_.

(Only 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, newton, 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 \_\_\_\_\_.

( $\pi/4$ ,  $\pi/2$ ,  $\pi$ , 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 cross a bridge, they are advised to march out of step due to the \_\_\_\_\_.

(Resonance, High frequency, Noise produced, Fact that 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 Principle, Sabine's Principle, Newtonian's Principle, Doppler's Principle)
121. If  $E$  is the coefficient of volume elasticity (Bulk Modulus) of the medium and  $d$  its density, then the velocity of a longitudinal wave in fluid is given by \_\_\_\_\_.  
( $v = E/P$ ,  $v = \bar{O}E/d$ ,  $v = P/E$ ,  $v = \bar{O}P/E$ )
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, sound travels 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 \_\_\_\_\_.  
( $v = \bar{O}gr/d$ ,  $v = r\bar{O}g/d$ ,  $v = gr/d$ ,  $v = g\bar{O}r/d$ )
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 \_\_\_\_\_.  
( $1/4$ ,  $1/2$ ,  $3/4$ ,  $1$ )
127. The period of pendulum is determined by its \_\_\_\_\_.  
(Length, Mass, Maximum Speed, Amplitude)
128. Red shift indicates the \_\_\_\_\_.  
(Approach of a star, Recession of a star, Stationary State of a Star, Size of a star)



03-17-2010, 10:46 AM

# 9 (permalink)

Tanha Karim  
Mind Reader**ADMINISTRATOR**Join Date: May 2009  
Location: Karachi  
Age: 25  
Posts: 34,638

Re: 1st Year Physics Multiple Choice Questions

## 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  $h = 6.625 \times 10^{-34}$  J/Hz. The energy associated with light with a wavelength of 160nm is \_\_\_\_\_.

( $1.24 \times 10^{-18} \text{ J}$ ,  $1.88 \times 10^{-18} \text{ J}$ ,  $1.24 \times 10^{-15} \text{ J}$ ,  $1.24 \times 10^{-15} \text{ J}$ )

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  $0.08 \text{ mm}$ , when the wavelength of light used is  $5800 \text{ \AA}$ , 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 these)

15. \_\_\_\_\_ is invalid for a photon.

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

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 \_\_\_\_\_.

(2l, l, 5/2 l, 5l)

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 wavelength)

27. The two light waves can interference destructively if \_\_\_\_\_.

(They reach a point in phase, they reach a point out of phase by  $\pi$  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  $180^\circ$ , One of two rays of splitted light undergo phase change of  $180^\circ$ , 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  $180^\circ$ , reflected, they are completely absorbed)

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. Fraunhofer's diffraction is observed when \_\_\_\_\_.

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

36. In Fraunhofer'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, Michelson'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  $p$  radian is \_\_\_\_\_.

( $2l$ ,  $l/2$ ,  $l/4$ )

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, Fraunhofer, Huygens)



03-17-2010, 10:47 AM

#10 (permalink)

**Tanha Karim**

Mind Reader

**ADMINISTRATOR**



Join Date: May 2009

Location: Karachi

Age: 25

Posts: 34,638



Re: 1st Year Physics Multiple Choice Questions

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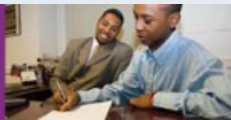
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