Kinematics

1. Change in position of a body is called:
   a) Displacement
   b) Velocity
   c) Acceleration
   d) Distance covered

2. Motion of a body is said to be accelerated when:
   a) It's speed changes
   b) It's direction of motion changes
   c) It is in equilibrium
   d) A and b
   e) A and c

3. Acceleration is the rate of change of velocity of a body. Direction of acceleration is always same as the.
   a) Direction of motion
   b) Direction of initial velocity
   c) Direction of final velocity
   d) Direction of change in velocity

4. When a body moves along a straight path with a variable speed, its acceleration is due to:
   a) A change in magnitude of it's velocity
   b) A change in direction of velocity
   c) A change in direction and magnitude of velocity.

5. Acceleration of a body moving along a circular path with variable speed is due to:
   a) A change in magnitude of it's velocity
   b) A change in the direction of velocity
   c) A change in magnitude and direction of velocity.

6. Product of mass and velocity of a body is called:
   a) Torque
   b) Force
   c) Momentum
   d) Work

7. Rate of change of momentum is:
   a) Force
   b) Torque
   c) Work
   d) Power.

8. If two bodies of different masses are moving with the same velocity it is difficult to stop the heavier body because.
   a) It has more kinetic energy and momentum.
   b) It has more potential energy and momentum.
   c) It is acted upon by a larger air resistance.
   d) None of these

9. Elastic collision is that in which:
   a) Momentum of colliding bodies is conserved.
   b) Kinetic energy of colliding bodies is conserved.
   c) Momentum and kinetic energy both are conserved.
   d) Kinetic energy changes into heat.

10. Collision between soft bodies is inelastic because:
   a) Kinetic energy of colliding bodies is conserved but momentum is not conserved.
   b) Momentum of the bodies increases because the bodies stick together.
   c) Kinetic energy in not conserved because it is used in changing the shape of colliding bodies.

11. When a very light body collides elastically with a stationary massive body, after collision.
   a) Light body comes to rest.
   b) Light body moves with the same velocity
   c) Light body moves with equal velocity in opposite direction.
   d) Velocity of light body becomes double its initial velocity.

12. Acceleration of a body moving down an inclined plane is given by:
   a) $A = g \sin 0 - f$
   b) $A = g \sin 0 - f/m$
   c) $A = f/m - g \sin 0$
   d) $A = - g \sin 0 - f/m$

13. Force friction can be reduced by using ball bearings because they:
   a) Make the surface plane.
   b) Make he surface greasy
   c) Convert sliding friction into rolling friction.
   d) Have no friction of their own.

14. If force acting on body is doubled then the acceleration produced is:
   a) Halved.
   b) Doubled.
   c) One fourth.
   d) Quadrupled.

15. Rolling friction is ……………… sliding friction.
   a) More than
   b) Less than
   c) Equal to.

16. If distance –time graph for a moving body is a straight line passing through the origin, then the body is moving with:
   a) Constant speed
   b) Variable speed.
   c) Constant velocity.
   d) Variable velocity.

17. If velocity-time graph for a moving body is a straight line passing through origin, then the body moves with:
   a) Uniform velocity.
   b) Uniform acceleration.
   c) Variable acceleration.
   d) None of them.

18. If velocity-time graph for a moving body is a straight line parallel to time axis, then the body moves with:
   a) Uniform velocity.
   b) Variable velocity.
   c) Uniform acceleration.
   d) Variable acceleration.

19. Slop of velocity time graph gives:
   a) Speed.
   b) Velocity.
   c) Acceleration.
   d) Displacement.

20. Property of a body by virtue of which it opposes any change in its state of rest or of motion is called:
   a) Inertia
   b) Elasticity
   c) Momentum
   d) Torque

21. Sliding friction is …………. The limiting friction.
   a) Slightly less than
   b) Equal to
   c) Slightly more than

22. When a constant force acts on a body, the body moves with:
   a) Uniform velocity.
   b) Constant acceleration.
   c) Constant momentum.
   d) Constant speed.

23. If average velocity of a body is equal t60 instantaneous velocity then velocity of the body will be:
   a) Uniform
   b) Variable.

24. Gradient of velocity-time graph represents:
   a) Speed.
   b) Velocity.
   c) Acceleration
   d) Displacement.

25. A rain drop continues to fall with a uniform velocity when: (2-b ii,1996)
   a) Its weight is balanced by air friction.
   b) Its weight is balanced by air friction and up thrust.
   c) Its weight is balanced by up thrust.

26. When a body is thrown vertically upwards, it is a case of. (3-b ii, 1996)
   a) Free fall motion.
   b) Projectile motion.
   c) Under gravity motion.

27. As a result of constant unbalanced force a body moves with: (1-a iii, 1998)
   a) Uniform velocity.
   b) Uniform speed
   c) Uniform acceleration.
   d) Variable acceleration.

28. in an inelastic collision: (2-ai, 2001)
   a) Kinetic energy is conserved but momentum is not conserved.
   b) Momentum is conserved but kinetic energy is not conserved.
   c) Both momentum and kinetic energy are conserved.
   d) Neither kinetic energy nor momentum is conserved.

21. The apparent weight of a person standing in an elevator which is moving down with uniform acceleration will be: 2-a iii, 2001)
a) Same as that on the surface of the earth.
b) Greater than its weight on the surface of the earth.
c) Less than its weight on the surface of the earth.

30. The acceleration of a body moving down a smooth plane inclined at 30° will be:
(4-an ii, 2001)
a) 9.8 m/s^2
b) 4.9 m/s^2
c) 980 m/s^2
d) None of them.

31. The apparent weight of a body in a satellite orbiting around the earth is always:
(4-an iii, 2001)
a) Zero.
b) M g
c) Increasing
d) None of them.

32. If the velocity-time graph of a body is a straight line, parallel to time axis, its acceleration will be: (1-a ii, Pre-med, 02)
a) Zero
b) Maximum.
c) Minimum.
d) Uniform.

33. Stock's law holds good for the: (1-a iii, Pre-med, 2002)
a) Bodies of all shapes.
b) Motion through viscous medium.
c) Motion through non-viscous medium.
d) Motion through a vacuum.

34. A 10 kg stone when falling from a height of 10 m, strikes the ground :(2-a I, pre-med. 2002)
a) 10 m/s
b) 14 m/s
c) 98 m/s
d) 196 m/s

35. Under the influence of a constant unbalanced force a body moves with a :(2-a I, Pre-Eng. 2002)
a) Uniform velocity.
b) Uniform acceleration.
c) Variable acceleration.
d) Uniform speed.

36. According to Stock's law the force exerted on a sphere of radius "r" moving vertically down with constant velocity "v" in a liquid of viscosity "n" is given by:
(2-a ii, Pre-Eng.2002).
a) 6n r v/n
b) 6 n nr v
c) $Nr^2 nv$
d) $Nr nv^2$

37. A helicopter of mass $3x10^4$ kg rises vertically with a constant speed of 25 M/s. What resultant force acts on the helicopter? 3-a iii, pre-Eng.2002)
a) Zero.
b) $3x10^4$ N down ward.
c) $3x10^4$ N up ward.
d) $3x10^4$ N up ward.
e) $7.5x10^4$ N up ward.

38. Car traveling at 65 km $h^{-1 \text{ north}}$ turns west without a change in speed. The car is moving with: (2-a I, Pre-med.2003)
a) Uniform velocity.
b) Acceleration.
c) Average velocity.
d) None of these.

39. How much height does a freely falling body of mass 10 kg? Lose in 2 sec? (2-a ii, Pre-med. 2003)
a) 9.8 m
b) 19.6 m
c) 49 m
d) 4.9 m

40. A body goes from 2 meter to 8 meter mark and back to 2 meter mark in 3 sec. Its average Speed is: (3-a iii, Pre-med. 03)
a) 2 m sec^{-1}
b) 6 m sec^{-1}
c) 4 m sec^{-1}
d) Zero

41. If two force of the same magnitude F make an angle of 180° with each other, their resultant is:
a) 2 F
b) Zero
c) 0.5 F
d) F

42. In case of inelastic collision: (4-a I, Pre-Eng.2003)
a) Both momentum and kinetic energy are conserved.
b) Neither momentum nor kinetic energy is conserved.
c) Only momentum is conserved.
d) Only kinetic energy is conserved

43. When a body slides over a surface the kinetic friction (f_k) and the static friction (f_s) are related by:
a) $F_k < f_s$
b) $F_s < f_k$
c) $F_k = 0$
d) $F_s = 0$

44. The unit of linear momentum is:
a) N/s
b) Ns
c) Js
d) J/s

45. The rate of change of linear momentum is equal to: (2a I 04)
a) Acceleration
b) Force
c) Torque

46. The acceleration of a body moving down a frictionless plane inclined at 30^* will be: (2s iii 04)
a) 4.9 m/s^2
b) 9.8 m/s^2
c) 980 m/s^2

47. When two bodies of unequal weights are dropped simultaneously from the same height, then:
a) Heavier body will reach the ground earlier.
b) Lighter body will reach the ground earlier.
c) Both of them will reach the ground at the same time.

48. Direction of retardation is:
a) Same as the direction of motion.
b) Opposite to the direction of motion.
c) Perpendicular to the direction of motion.

49. If the velocity-time graph of a moving body is a curve, the body moves with: 2a I 05)
a) Constant speed.
b) Constant velocity.
c) Constant acceleration.
d) Changing acceleration.

50. In Stock's law the viscous force is not proportional to: (2a ii 05)
a) Coefficient of viscosity.
b) Radius of sphere.
c) Terminal velocity.
d) Mass of the sphere.

51. When a body moves with a constant speed in a circle: (2a iii 05)
a) It's velocity changing.
b) Its acceleration is zero.
c) Its acceleration is increasing.
d) Its velocity is uniform.

52. When a constant force is applied on a body, it moves with: (2a iii 07
a) Constant speed.
b) Constant velocity.
c) Constant acceleration.
d) None.

53. Stock's law of fluid friction is given as:
a) $F = 6Лηr^2v$
b) $F = 6Лηrv$
c) $F = Лηrv$
d) $F = Лηrv$

54. in an inelastic collision of two bodies: (4a ii 08)
a) Kinetic energy is conserved.
b) Momentum is conserved.
c) Both K.E and momentum are conserved.
d) Neither K.E nor momentum is conserved.

55. Which of the following is a spin motion: (3a ii 08)
a) The motion of planets around the sun.
b) The motion of electrons around the nucleus.
c) The motion of the moon around the earth.
d) The daily rotation of the earth causing day and night.

56. if a light object collides with a massive body which is at rest, the light object will: 1-xii 2009)
a) Rebound with the same velocity.
b) Be stopped.
c) Rebound with twice the velocity.
d) Causes the massive body to move.

57. Stokes law holds well for; (1-xii 2010
The bodies of all shapes.
a) Motion through non-viscous medium.
b) Motion through vacuum.
c) Motion through viscous medium.

58. How many meters (s) will a 20 kg? Ball, starting from rest, fall freely in one second.
a) 19.6 m
b) 9.8 m
c) 4.0 m
d) 4.9 m

59. A cyclist cycling around a circular track skids because: (1-xvi 2010)
a) The centripetal force upon him is less than the limiting friction.
b) The centripetal force upon him is greater than the limiting friction.
c) The centripetal force upon him is equal to the limiting friction.
d) None of these.

ANSWERS

1. Displacement
2. A and b
3. Direction of change in velocity
4. A change in magnitude of it's velocity
5. A change in magnitude and direction of velocity
6. Momentum
7. Force
8. It has more kinetic energy and momentum
9. Momentum and kinetic energy both are conserved
10. Kinetic energy is not conserved because it is used in changing the shape of colliding bodies.
11. Light body moves with equal velocity (speed) in opposite direction.
12. A = g Sin 0 – f/m
13. Convert sliding friction into rolling friction.
14. Doubled.
15. Less than
16. Constant speed
17. Uniform acceleration
18. Uniform velocity.
19. Acceleration.
20. Inertia.
21. Slightly less than.
22. Constant acceleration.
23. Uniform.
24. Acceleration.
25. Its weight is balanced by air friction and up thrust.
26. Free fall motion.
27. Uniform acceleration.
28. Momentum is conserved but kinetic energy is not conserved.
29. Less than its weight on the surface of earth.
30. $4.9 \, m/s^2$
31. Zero
32. Zero
33. Motion through viscous medium.
34. 14 m/s.
35. Uniform acceleration.
36. 6Лnrv.
37. Zero
38. Acceleration.
39. 19.6 m
40. 4 m/s.
41. Zero.
42. Only momentum is conserved.
43. $F_k < f_s$.
44. Ns.
45. Force.
46. $4.9 \, m/s^2$
47. Both of them will reach the ground at the same time.
48. Opposite to the direction of motion.
49. Changing acceleration.
50. Mass of the sphere.
51. Its velocity is changing.
52. Constant acceleration.
53. F = 6Лnrv.
54. Momentum is conserved only.
55. The daily rotation of the earth causing day and night.
56. Rebound with the same velocity.
57. Motion through viscous medium.
58. 4.9 m
59. The centripetal force upon him is greater than the limiting friction.