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1. Impulse is (a) a scalar quantity (b) a vector quantity (c) neither a scalar nor a vector (d) Sometimes a scalar and sometimes a vector

2. Choose the wrong statement: (a) 1 kg wt = 9.8 N (b) Momentum is a vector quantity (c) Force is always conserved (d) Momentum is conserved in the absence of an external force.

3. A long jumper runs before jumping because (a) he covers a greater distance (b) he maintains momentum conservation (c) he gains energy by running (d) he gains momentum

4. If a Jack is brought from the surface of the moon (a) its mass will change (b) Its weight will change, but not mass (c) both mass and weight will change (d) its mass and weight will remain the same.

5. If 1 kg wt = 10 N, the value of gravitational intensity will be (a) 10 m/s^2 (b) 1/10 m/s^2 (c) 1 m/s^2 (d) 1/100 m/s^2

6. The force acting on a mass of 1 kg due to the gravitational pull on the earth is called 1 gwt. One gwt equals . (a) 1 N (b) 9.8 N (c) 980 dyne (d) none

7. The weight of a body would not be zero (a) at the centre of the earth (b) during a free fall (c) in interplanetary space (d) on a frictionless surface

8. An iron ball and a wooden ball of the same radius are released from a height H in Vacuum. The times taken by both of them to reach the ground are (a) roughly equal (b) unequal (c) exactly equal (d) in the inverse ratio of the their diameters.

9. A man is standing on a boat in still water. If he walks towards the shore the boat will (a) move away from the shore (b) remain stationary (c) move towards the shore (d) sink

10. During a planned manoeuvre in a space flight a free – floating astronaut A pushes another free floating astronaut B, the mass of A being greater than that of B. Then the magnitude of the force exerted by astronaut A on astronaut B is (a) equal to zero (b) equal to the force exerted by B on A (c) greater than the force exerted by B on A (d) less than the force exerted B on A

11. In the above problem , during a push (a) the acceleration of A is greater than that of B (b) the acceleration of A is less than of B (c) neither is accelerated (d) their acceleration are equal in magnitude but opposite in direction.

12. A bullet of mass A and velocity B is fired into a black of wood of mass C. It loss of any mass and friction be neglected , the velocity of the system must be (a) AB/A + C (b) A+ C/ B + C (c) AC / B + C (d) A + B/AC

13. A driver acceleration his car first at the rate of 1.8 m/s^2 and then at the rate of 1.2 m/s^2. The ratio of the forces exerted by the engines will be respectively equal to (a) 2 : 3 (b) 1 : 2 (c) 2 : 1 (d) 3 : 2

14. A body of mass 5 kg undergoes a charge in speed from 30 to 40 m/s^2. Its momentum would increase by (a) 50 kg m/s (b) 75 kg m/s (c) 150 kg m/s (d) 350 kg m/s

15. The force needed to produce an acceleration of 6 m/s^2 in a ball of mass 4 kg will be (a) 24 N (b) 30 N (c) 32 N   (d) 366 N

16. A body of mass 5 kg undergoes a change in speed from 20 to 0.20 m/s. The momentum of the body would   (a) increase by 99 kg m/s (b) decreases by 99 kg m/s (c) increase by 101 kg m/s (d) decrease by 101 kg m/s

17. A bullet of mass 0.01 kg is fired from a gun weighing 5.0 kg. If the initial speed of the bullet is 250 m/s. Calculate the speed with which the gun recoils. -0.50 m/s (b) -0.25 m/s (c) +0.05 m/s (d) +0.25 m/s

18. A body of mass 100 g is moving with a velocity of 15 m/s. The momentum associated with the ball will be   (a) 0.5 m/s (b) 1.5 kg m/s (c) 2.5 kg m/s (d) 3.2 N s

19. A number of discs, each of momentum M kg m/s are striking a wall at the rate of n discs per minute. The force associated with these discs, in newtons, would be (a)Mn/ 60 (b) 60 Mn (c) M/60n (d) n/60 M

20. If the momentum of a body is doubled, the kinetic energy is (a) halved (b) unchanged (c) doubled   (d) becomes 4 times

21. It action and reaction were to act on the same body (a) the resultant would be zero (b) the body would not move at all (c) both (a) and (b) are correct (d) neither (b) nor (b) is correct.

22. A stationary ball weighing 0.25 kg acquires a speed of 10 m/s when hit by a hockey stick. The impulse imparted to the ball is (a) 2.5 N s (b) 2.0 N s (c) 1.5 N s (d) 0.5 N s

23. In the above problem, if we increase the pull at P gradually , the string will break (a) below the stone   (b) at the point O itself (c) above the stone (d) nothing can be decided.

24. The above problem can be explained on the basis of the property of (a) inertia (b) force (c) momentum (d) torque

25. The combined effect of mass and velocity is taken into account by a physical quantity called (a) torque   (b) moment of force (c) momentum (d) moment of momentum

26. Momentum is a measure of (a) weight (b) mass (c) quantity of motion (d) velocity

27. Momentum has the same units as that of (a) impulse (b) torque (c) moment of momentum (d) couple

28. A hammer weighing 3 kg, moving with a velocity of 10 m/s, strikes against the head of a spike and drives it into a block of wood. If the hammer comes to rest in 0.025s. The impulse associated with the ball will be (a) 30 N s   (b) – 30 N s (c) 15 N s (d) -15 N s

29. In the above problem, the average (retarding) force acting on the spike will be (a) 600 N (b) – 600 N (c) 1200 N (d) -1200 N

30. In a tug –war between the teams A and B, the rope breaks at a point which is nearer to A. Then (a) A has applied more force (b) B has applied more force (c) A and B both have applied same force (d) none has applied any force

31. A rocket works on the (a) first law of motion (b) second law of motion (c) third law of motion   (d) law of conservation of energy .

32. When a bicycle travels on a rough surface, its speed (a) increases (b) decreases (c) remains the same (d) none

33. If you are asked to push an object so that the acceleration produced in it is now twice as before, then the force required will be (a) twice as before (b) half as before (c) same as before (d) four times as before

34. If is difficult to walk on ice because of (a) absence of friction (b) absence of inertia (c) more inertia   (d) more friction

35. The law which defines force is (a) Newton's third law of motion (b) Newton's first law of motion   (c) Newton's second law of motion (d) Newton's law of gravitation

36. The law which gives a quantitative measurement of force is (a) Newton's third law of motion   (b) Newton's first law of motion (c) Newton's second law of motion (d) Newton's law of gravitation

37. Internal force (a) are always balanced (b) are never balanced (c) may or may not be balanced (d) none of these

38. Internal force (a) are always balanced (b) never balanced (c) may or may not be balanced (d)none of these

39. Friction between any two objects is due to (a) attraction between them (b) repulsion between them   (c) some adhesive forces between them (d) irregularities on the surfaces

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40. A and B are two object with mass 6 kg and 34 kg respectively. Then (a) A has more inertia than B   (b) B has more inertia than B (c) A and B both have same inertia (d) none of the above is true

Answer

1. b   2. C   3. D   4 . b   5. A   6. C   7. D   8. C   9. A   10. B   11. A   12. D   13. A   14. A   15. A

    16. B   17. A   18. B   19. A   20. D   21. C   22. A   23. C   24. a   25. C   26. C

    27. a   28. B   29. B   30. A   31. C   32. B   33. A   34. A   35. C   36. C   37. A   38. C

    39. D   40. B