

## Mechanics (Mass, Force, Acceleration, Work, Energy, Momentum, Velocity)

1. The working principle of a washing machine is [IAS (Pre) 1997 UPPCS (Mains) 2004 Uttarakhand Lower Sub. (Pre) 2010]

1. Centrifugation
2. Dialysis
3. Reverse osmosis
4. Diffusion

2. Which of the following is not a vector quantity? [Arunachal Pradesh PSC (Pre) 2017 45th BPSC (Pre) 2001]

1. Displacement
2. Velocity
3. Force
4. Volume

3. A simple machine helps a person in doing [IAS (Pre) 1996]

1. Less work
2. The same amount of work with lesser force
3. The same amount of work slowly
4. The same amount of work much faster

4. A man is standing on a sensitive balance. If he inhales deeply, the reading of the balance [UPPCS (Mains) 2013]

1. Increases
2. Decreases
3. Remains unaffected
4. May increase or decrease depending on the atmospheric pressure

5. Which of the following is a vector quantity? [UPRO/ARO (Mains) 2014]

1. Time
2. Speed
3. Displacement
4. Distance

6. Which one of the following is a vector quantity? [IAS (Pre) 1997]

1. Momentum

2. Pressure
3. Energy
4. Work

7. Which physical quantity is represented by the ratio of momentum and velocity of the body? [Himachal Pradesh PSC (Pre) 2019 45th BPSC (Pre) 2001]

1. Velocity
2. Acceleration
3. Mass
4. Force

8. Force is the product of [45th BPSC (Pre) 2001]

1. Mass and velocity
2. Mass and acceleration
3. Weight and velocity
4. Weight and acceleration

9. If the number representing volume and surface area of a cube are equal, then the length of the edge of the cube in terms of the unit of measurement will be [IAS (Pre) 1997]

1. 3
2. 4
3. 5
4. 6

10. Energy conservation means [MPPCS (Pre) 2000]

1. Generation and destruction of energy
2. Energy could be created
3. Energy could not be created but destroyed
4. Energy can neither be created nor destroyed

11. The energy of wind is [Uttarakhand Lower Sub. (Pre) 2010]

1. Only potential
2. Only kinetic
3. Electrical
4. Potential and kinetic both

12. In wind power, which form of energy is converted into electrical energy? [UPPCS (Pre) 2016]

1. Kinetic energy
2. Potential energy
3. Solar energy
4. Radiant energy

13. As the train starts moving, the head of the passenger sitting inside leans backward because of [UP UDA/LDA (Pre) 2010]

1. Inertia of Rest
2. Inertia of Motion
3. Moment of Inertia
4. Conservation of Mass

14. It is difficult to walk on the ice than on the road because

[UPPCS (Pre) 1994]

1. Ice is harder than the road
2. Road is harder than the ice
3. Ice does not offer any reaction when we push it with our foot
4. Ice has a lesser friction than the road

15. A man jumped at a speed of 5 metre per second from a stationary boat and the boat moved off with the speed of 0.5 metre per second. How many times is the mass of the boat greater than that of the man? [Karnataka PSC (Pre) 2016 IAS (Pre) 1994]

1. 5.5 times
2. 4.5 times
3. 2.5 times
4. 10 times

16. A truck, a car and a motorcycle have equal kinetic energies. If equal, stopping forces are applied and they stop after travelling a distance of X, Y and Z respectively, then [IAS (Pre) 1996]

1.  $X > Y > Z$
2.  $X < Y < Z$
3.  $X = Y = Z$
4.  $X \cong 4Y \cong 8Z$

17. A person is sitting in a car which is at rest. The reaction from the road at each of the four wheels of the car is R. When the car runs on a straight level road, how will the reaction at either of the front wheels vary? [Gujarat PSC (Pre) 2018 IAS (Pre) 1998]

1. It will be greater than R

2. It will be less than R
3. It will be equal to R
4. It shall depend on the material of the road

18. An oil tanker is partially filled with oil and moves forward on a level road with uniform acceleration. The free surface of oil, then [IAS (Pre) 2003]

1. remains horizontal
2. is inclined to the horizontal with smaller depth at the rear end
3. is inclined to the horizontal with larger depth at the rear end
4. assumes parabolic curve

19. What is the correct equation for finding the acceleration? [UPPSC (Pre) 2003]

1.  $a = (v - u)/t$
2.  $a = u + vt$
3.  $a = (v + u)/t$
4.  $a = (v + u)/2$

20. Assertion (A): A man standing on a completely frictionless surface can propel himself by whistling. Reason (R): If no external force acts on a system, its momentum cannot change. [IAS (Pre) 2000] Code

1. Both (A) and (R) are true and (R) is the correct explanation of (A)
2. Both (A) and (R) are true, but (R) is not the correct explanation of (A)
3. (A) is true, but (R) is false
4. (A) is false, but (R) is true

21. Consider the following statement and conclusions which can be drawn from it. Choose the correct conclusion. Statement: In starting a loaded cart, one has to push harder than to keep it moving. [Himachal Pradesh PSC (Pre) 2018 UPPCS (Mains) 2013] Conclusion

1. The weight of a moving object is less
2. The wheels tend to slip initially
3. There is less friction once the cart starts moving
4. Practice makes perfect

22. Consider the following statements. A 4-wheel vehicle moving in a sharp circular path at high speed will

1. Overturn about its outer wheels
2. Overturn about its inner wheels

3. Skid outwards

4. Skid inwards

Which of these statements are correct? [Goa PSC (Pre) 2017 IAS (Pre) 2003]

1. 1 and 3
2. 2 and 4
3. 2 and 3
4. 1 and 4

*TELEGRAM*