

# MECHANICS (MASS, FORCE, ACCELERATION, WORK, ENERGY, MOMENTUM, VELOCITY) BASED GENERAL SCIENCE MCQ PRACTICE QUESTIONS AND ANSWERS PDF WITH EXPLANATION

For All Competitive SSC, Bank, IBPS, UPSC, Railway, IT & Other Govt. Exams

Created By [Careericons](#) Team

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**Q1.** Newton's laws of motion do not hold good for objects

- a) moving with high velocity
  - b) moving slowly
  - c) at rest
  - d) moving with velocity comparable to velocity of light
- 

**Q2.** A particle is moving in a circular path of radius  $r$ . The displacement after half a circle would be

- a)  $2r$
  - b)  $\pi r$
  - c) zero
  - d)  $2\pi r$
- 

**Q3.** A man getting down a running bus, falls forward because-

- a) he leans forward as a matter of habit
  - b) due to inertia of motion upper part of body continues to be in motion in forward direction while feet come to rest as soon as they touch the road
  - c) due to inertia of rest, road is left behind and man reaches forward
  - d) of the combined effect of all the three factors stated in (a), (b) and (c)
- 

**Q4.** Gravitational potential energy of an object will

- a) not effected by changing the path, provided the overall height is same

- b) decrease by increasing the path along which the object is moved
- c) increase by increasing the path along which the object is moved
- d) None of these

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**Q5.** It is difficult to cut things with a blunt knife because

- a) a blunt knife decreases the pressure for a given force
- b) a sharp edge decreases the pressure exerted by knife for a given force
- c) the pressure exerted by knife for a given force increases with increase in bluntness
- d) a blunt knife decreases the area of intersection

**Q6.** A system of masses connected by a string, passing over pulleys A and B as shown in the figure. The pulleys are massless. Match the columns : (Take  $g = 10 \text{ m/s}^2$ )

Column I	Column II
A. Acceleration of mass 4 kg, $a_1$	1. $2 \text{ m/s}^2$
B. Acceleration of mass 6 kg, $a^2$	2. $4 \text{ m/s}^2$
C. Acceleration of mass 15 kg, $a^3$	3. $8 \text{ m/s}^2$
	4. zero

Choose the correct option from the codes given below for (A), (B), (C)

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- a) A – 2 ; B – 3 ; C – 1
- b) A – 2 ; B – 4 ; C – 1
- c) A – 1 ; B – 2 ; C – 3
- d) A – 4 ; B – 3 ; C – 2

**Q7.** A jet plane moves up in air because

- a) the flow of air around the wings causes an upward force, which compensates for the force of gravity
  - b) the thrust of the jet compensates for the force of gravity
  - c) the gravity does not act on bodies moving with high speeds
  - d) the weight of air whose volume is equal to the volume of the plane is more than the weight of the plane
- 

**Q8.** A man is standing on a sensitive balance. If he inhales deeply, the reading of the balance

- a) Remains unaffected
  - b) Decreases
  - c) Increases
  - d) May increase or decrease depending on the atmospheric pressure
- 

**Q9.** If velocity of a body is twice of previous velocity, then kinetic energy will become

- a) 4 times
  - b)  $1/2$  times
  - c) 2 times
  - d) 1 times
- 

**Q10.** Which of the following are examples of **uniform velocity**?

- a) Motion of car on crowded road
  - b) Motion of planet around sun
  - c) Motion of moon around earth
  - d) Motion of a moving fan
-

**Q11.** Consider the following statements :

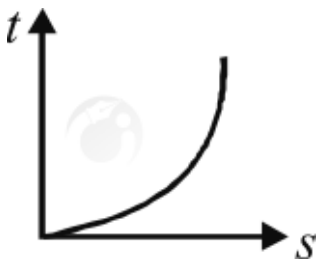
- A person standing for a long time with a suitcase on his head does no work in terms of physics.
- There cannot be any displacement of an object in the absence of any force acting on it.
- The law of conservation of energy is valid in all situations and for all kinds of transformations.

Which of these statements is/are **correct** ?

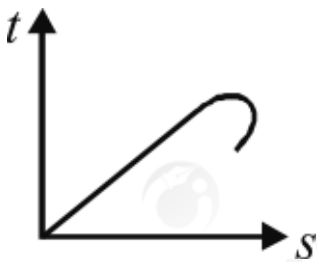
- a) 2 and 3  
b) 1 and 2  
c) 1 and 3  
d) 1, 2 and 3
- 

**Q12.** Which of the following time-displacement graph is not possible in nature?

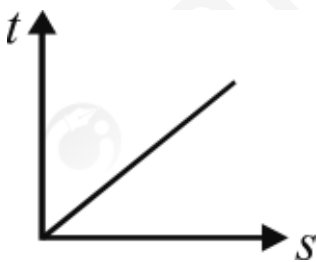
a)



b)



c)



d)



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**Q13.** Consider the following statements.

A 4-wheel vehicle moving in a sharp circular path at high speed will

- Overturn about its outer wheels
- Overturn about its inner wheels
- Skid outwards
- Skid inwards

Which of these statements are **correct**?

- a) 2 and 3
- b) 2 and 4
- c) 1 and 3
- d) 1 and 4

**Q14.** For a particle revolving in a circular path, the acceleration of the particle is

- a) zero
- b) along the radius
- c) along the tangent
- d) along the circumference of the circle

**Q15.** Energy conservation means

- a) Energy could not be created but destroyed
- b) Energy could be created

- c) Generation and destruction of energy  
d) Energy can neither be created nor destroyed

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### Answers to the above questions :

Q1. Answer: (d)

Q2. Answer: (a)

Q3. Answer: (a)

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GENETIC ENGINEERING AND BIO TECHNOLOGY

**Q4. Answer: (a)**

**Q5. Answer: (a)**

**Q6. Answer: (b)**

A ? (2) ; B ? (4) ; C ? (1)

The acceleration of mass 15 kg

$$a_3 = \frac{15 - (6 + 4)}{15 + 6 + 4}g = 2 \text{ m/s}^2$$

The acceleration of masses 4 kg and 6 kg with respect to pulley B is,

$$a = \frac{(6 - 4)}{(6 + 4)}g = 2 \text{ m/s}^2.$$

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### Q7. Answer: (b)

When a jet plane flies, it ejects gases in a backward direction at a very high velocity.

**From Newton's third law**, these gases provide the momentum for the jet plane in the forward direction plus compensate for the force of gravity.

### Q8. Answer: (c)

### Q9. Answer: (a)

### Q10. Answer: (c)

#### Uniform velocity:

**Definition:** The condition in which a body covers an equal level of distances in unequal intervals of time is called the uniform velocity.

#### Examples of uniform velocity

When a particle moves with a uniform velocity, the slope of a displacement-time graph (Fig) is constant at all points.

It is a stable velocity, i.e., the velocity that does not change with time in scale or direction in space. This means that a body has this type of velocity if it travels at a constant speed along an instant line (i.e., in an exacting direction). There has been no change in either speed or direction.



The following are some examples:

- The Moon's orbit around the Earth
- The movement of a watch's hands
- Earth's Rotation Earth's Revolution
- Raindrops fall on the Earth's surface. This is the velocity with which a body moves once it is started on a frictionless surface.
- All circular motion is an example: the movement of a fan and our clock hand.

**Q11. Answer: (c)**

Yes. If a particle is moving and there is no force on it, then it will continue to move with constant velocity.

Thus it will have displacement.

**Q12. Answer: (b)**

**Q13. Answer: (a)**

**Q14. Answer: (b)**

**Q15. Answer: (d)**

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