

## 7th Science Unit II Assignment Answer Key

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### Unit 2 Part - A

#### I. One Mark Questions

1. SI unit for distance and displacement .....

- A) M
- B) M<sup>2</sup>
- C) K.m
- D) K.m<sup>2</sup>

**Answer:- A) M**

2. Speed is.....

- A) Distance/Time
- B) Time/Distance
- C) Time\*Distance
- D) Time+Distance

**Answer:- A) Distance/Time**

3. Velocity is——

- A) Displacement/hour
- B) Time/Displacement
- C) Displacement/Time
- D) Minutes/ Displacement

**Answer:- C) Displacement/Time**

4. SI unit of Velocity is.....

- A) s/m
- B) m/s
- C) M<sup>2</sup>/minutes
- D) m/minutes

**Answer:- B) m/s**

5. One girl takes 30s to complete a 300m sprint event. Find her speed?

- A. 9 m/s
- B. 10 m/s
- C. 8 m/s
- D. 7 m/s

**Answer:- B. 10 m/s**

6. The rate of change in velocity is.....

- A. Speed
- B Time
- C. Acceleration
- D. Motion

**Answer:- C. Acceleration**

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7. Acceleration formula is .....

- a)  $a = v - u / t$
- b)  $a = u - v / t$
- c)  $a = u - t / v$
- d)  $v = u - a / t$

**Answer:- a)  $a = v - u / t$**

8. Bus at rest

- A) Zero acceleration
- B) Negative acceleration
- C) Positive acceleration
- D) Uniform acceleration

**Answer:- A) Zero acceleration**

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

- A. Zero
- B.  $R$
- C.  $2r$
- D.  $r/2$

**Answer:- C.  $2r$**

10. How many types of stability?

- A. 3
- B. 4
- C. 2.
- D. 5

**Answer:- A. 3**

**Part - B**

**II. Short Answer.**

1. Distinguish between speed and velocity?

Speed	Velocity
Speed is the rate of change of distance	Velocity is the rate of change in displacement
Speed = distance / time	Velocity( $v$ ) = displacement / time
Unit is metre/second (m/s)	SI unit of velocity is meter/second (m/s)

2. What is the centre of velocity?

Any point on a rigid body or on its extension that has zero velocity is called the Instantaneous Center of Velocity of the body

### 3. Mention three types of stability?

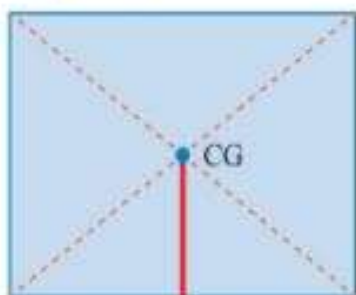
1. Stable equilibrium
2. Unstable equilibrium
3. Neutral equilibrium

### 4. What is Acceleration?

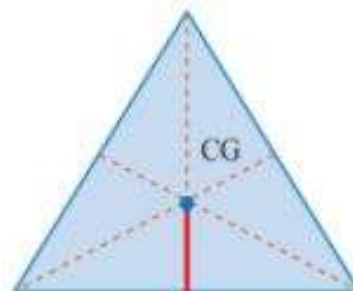
1. Acceleration is the rate of change in velocity
2. Acceleration = change in velocity / time
3. SI unit of acceleration is  $m/s^2$

### 5. Draw centre of gravity for regular-shaped objects?

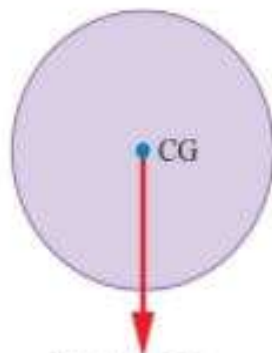
#### Centre of gravity for Regular – shaped objects



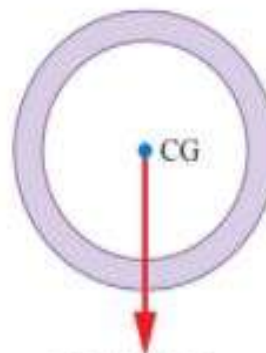
Weight of card



Weight of triangle



Weight of disc



Weight of ring

Part - C

III. Write in detail.

1. Explain the 3 types of stability with suitable example?

### 2.7 Stability

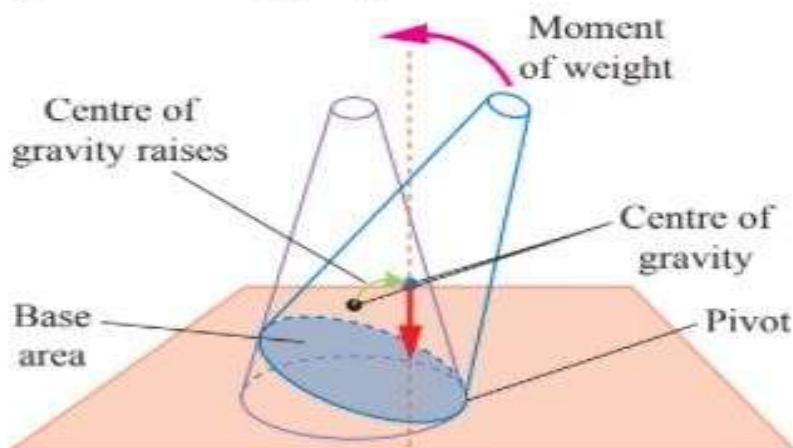
Stability is a measure of the body's ability to maintain its original position.

The three types of stability are

- (a) Stable equilibrium
- (b) Unstable equilibrium
- (c) Neutral equilibrium

#### Stable Equilibrium

The frustum can be tilted through quite a big angle without toppling.



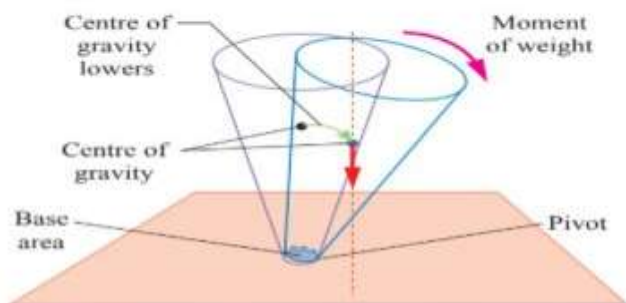
Its centre of gravity is raised when it is displaced.

The vertical line through its centre of gravity still falls within its base.

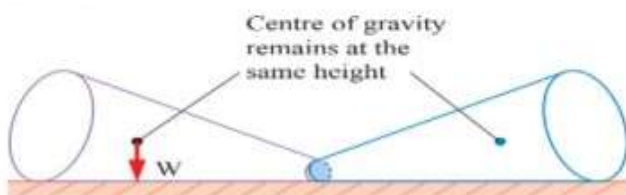
So it can return to its original position.

### Unstable Equilibrium

The frustum will topple with the slightest tilting. Its centre of gravity is lowered when it is displaced.



The vertical line through its centre of gravity falls outside its base.



### Neutral Equilibrium

- (d) It causes frustum to topple.
- (e) The frustum will rolls about but does not topple.
- (f) Its centre of gravity remains at the same height when it is displaced.
- (g) The body will stay in any position to which it has been displaced.

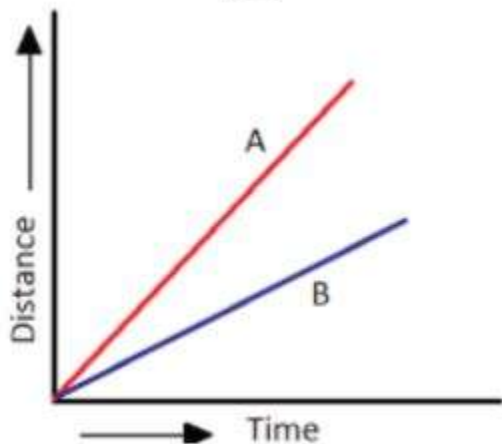
### Condition for Stability

To make a body more stable

- ❖ Lower its centre of gravity
- ❖ Increase the area of its base
- ❖ This box is at the point of tipping over
- ❖ A heavy base lowers at the centre of gravity  
So the box does not tip over
- ❖ A brode base makes the box more difficult to tip over

### Part - D

1. A graph is drawn between distance and time. There are two cars A & B with different accelerations. Which of the two is moving faster? Justify your answer.



Car A moves faster than car B because the distance covered by car A is more compared to car B and the time taken by car A is less than car B.

### Unit 4 ATOMIC STRUCTURE

#### Part A

#### I. One Mark Questions

1. Subatomic particles of an atom are.....

- A) 3
- B) 4
- C) 2
- D) 5

Answer:- A) 3

2. Who discovered the Proton?

- A) Ernest Rutherford
- B) J.J. Thomson
- C) James Chadwick
- D) Dalton

Answer:- A) Ernest Rutherford

3. Negatively charged particle is.....

- A) Neutron
- B) Proton
- C) Electron
- D) None of these

Answer:- C) Electron

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**4. Atomic number of Hydrogen is.....**

- A) 3
- B) 2
- C) 1
- D) 5

**Answer:- C) 1**

**5. The proton charge is———**

- A) +1
- B) -1
- C) 0
- D) +2

**Answer:- A) +1**

### **II .Short Answer**

**1. What is subatomic particle?**

Atoms of all elements are made up of smaller components electron, proton and neutron. These particles that make up the atom are called Subatomic particles.

**2. What are nucleons?**

Protons and Neutrons are the two types of particles in the nucleus of an atom. They are called nucleons.

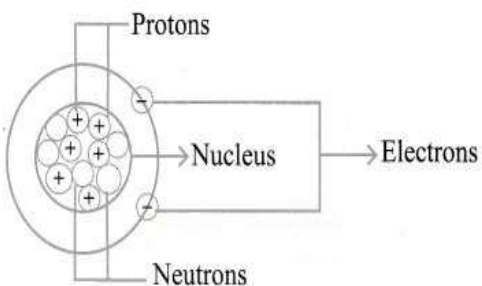
**3. Write any four elements that are used in day today life?**

- Oxygen
- Hydrogen
- Carbon
- Calcium

### III. Answer in Detail

#### 1. Draw the atom structure and explain it

Structure of an atom.



Position of the subatomic – particles.

Atom consist of three sub-atomic.

Particles : 1. Protons, 2. Electrons, 3. Neutrons

1. The nucleus of the atom contains the protons (positively charged) and the neutrons (no change)
2. The outermost regions of the atom are called electron shells and contain the electrons (negatively charged)
3. The protons have a positive charge while neutrons have a neutral charge.
4. Electrons circle around the nucleus of an atom, they are negatively charged.