Physics.

- Units and measurement ✓
- Motion.

TOPIC : MOTION AND REST

Motion: Whenever a particle changes its position w.r.t time then the particle is said to be in motion.

↳ Reference point: origin: Rest:

Types of Motion:

1) Rectilinear Motion (linear Motion): - particle is moving in a straight linear

Eg: ① free fall of bodies etc.

2) Curvilinear motion: → without Rotation.

3) Random motion:

without fuel → Rotational motion :-

escape velocity.

5) Circular motion : When a particle is moving about a circle.

Earth

$V_{esc} \approx 11.2 km/s$

Earth

planets revolving around the sun.

circular motion.

e

electrons revolving around the nucleus.

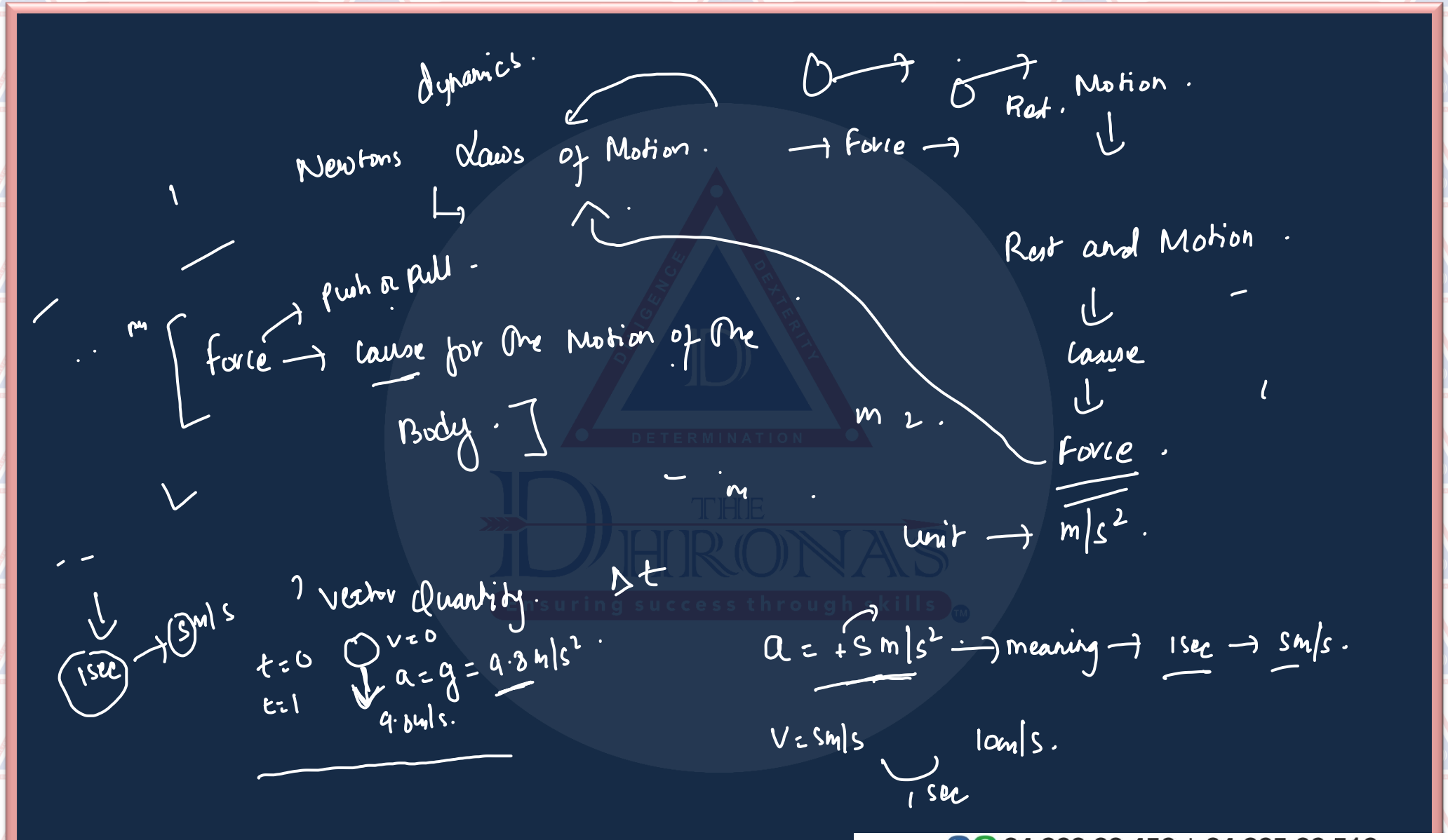
+Q

6) Vibratory motion :- motion of strings while playing guitar.

7) Oscillatory motion :-

pendulum swing

↳ vibration of molecules.



गति र विश्राम / Motion and Rest

समयसँगै शरीरको स्थिति परिवर्तन भएमा शरीर गतिमा रहेको भनिन्छ तर समयसँगै शरीरको स्थिति परिवर्तन भएन भने विश्राममा भएको भनिन्छ ।

1. अधिकतम दूरी प्राप्त गर्न क्रिकेट बललाई कुन कोणमा हिर्काउनुपर्छ

The angle at which the cricket ball should be hit to attain the maximum distance is

(A) 45 (B) 60 (C) 90 (D) 0

2. तलका मध्ये कुन रेक्टलाइनर गतिको उदाहरण हो
Which of the following is an example of rectilinear motion

(A) planets revolving around the sun ×

(B) free falling object ✓

(C) motion of satellites ×

(D) motion of pendulum × oscillatory motion.

3. तलका मध्ये कुन गोलाकार गतिको उदाहरण हो
which of the following is an example of circular motion

(A) satellites revolving around the earth

(B)free fall of an object

(C) stone rolling down an inclined plane

(D) none

4. तलका मध्ये कुन दोलन गतिको उदाहरण हो
which of the following is an example of oscillatory motion

(A) oscillation of simple pendulum ✓

(B) ball rolling on the ground ×

(C) a car moving in a track ×

(D) none

5. वृत्तको वरिपरि घुम्दा कणको विस्थापन के हो?

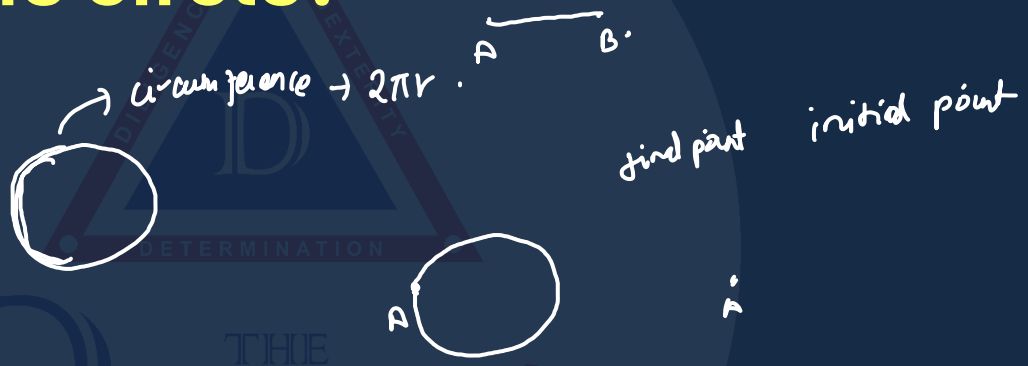
what is the displacement of the particle when it travells around the circle?

(A) 360

(B) 2πr → Distance.

(C) zero → Displacement.

(D) equal to radius



6. कणको विस्थापन के हुन्छ यदि यो वृत्तको परिधिको आधा परिधि जसको त्रिज्या 'R' हो?

what is the displacement of the particle if it travels exactly half the circumference of circle whose radius is 'R'?

(A) R

(B) πR → distance

(C) 2πR

(D) 2R

AB = diameter = Displ

7. जब कुनै कण गुरुत्वाकर्षणको प्रभाव अन्तर्गत स्वतन्त्र रूपमा खस्छ भने, कणमा कार्य गर्ने त्वरण

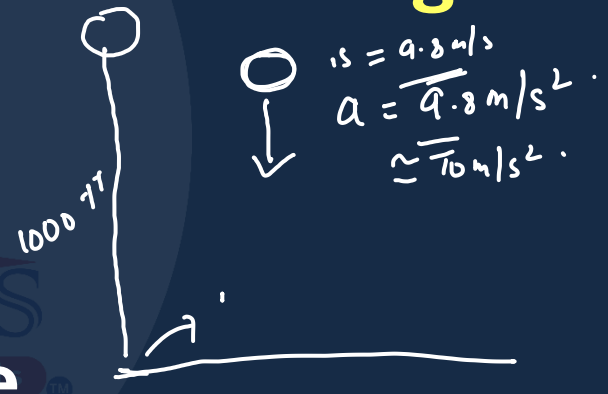
when a particle if falling freeling under the influence of gravity, the acceleration acting on the particle is

(A) 12 meter per second square

(B) 15 meter per second square

(C) 9.8 meter per second square

(D) None



8. सबैभन्दा उचाइमा रहेको कणको वेगलाई माथि फ्याँक्दा के हुन्छ?

what happens to the velocity of the particle at greatest height when it is thrown upwards?

(A) it becomes maximum

(B) zero

(C) velocity becomes half

(D) velocity becomes double

9. विस्थापनको ढलान बनाम समय ग्राफले के प्रतिनिधित्व गर्दछ

what does the slope of displacement vs time graph represent

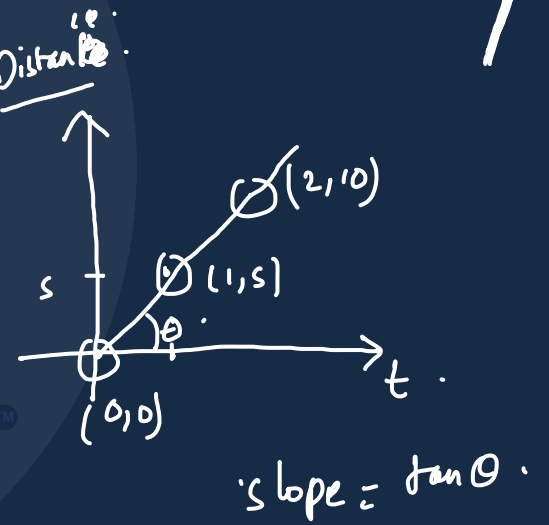
(A) acceleration

(B) force

(C) velocity

(D) none

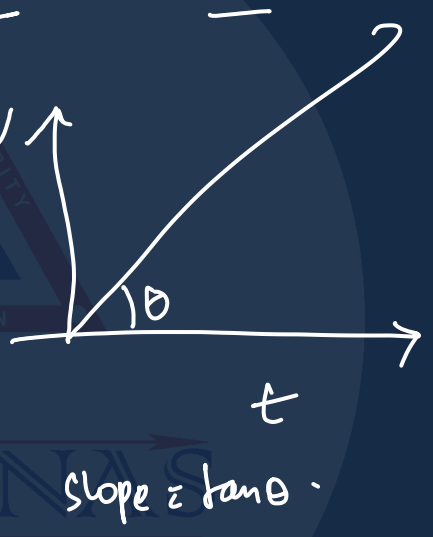
D	0	s	10
t	0	1s	2s



slope = tan θ

10. वेग समय ग्राफ को ढलान के प्रतिनिधित्व गर्दछ
what does the slope of velocity time graph represent

(A) acceleration
(B) force
(C) displacement
(D) none



11. परिमाण र दिशा दुबै हुने भौतिक मात्रालाई भनिन्छ
The physical quantity that has both magnitude and direction is known as

(A) vectors → m + d.
(B) scalars
(C) Both(a) and (b)
(D) Neither (a) or (b)

12. वेग समय ग्राफ को वक्र अन्तर्गत क्षेत्र के प्रतिनिधित्व गर्दछ?

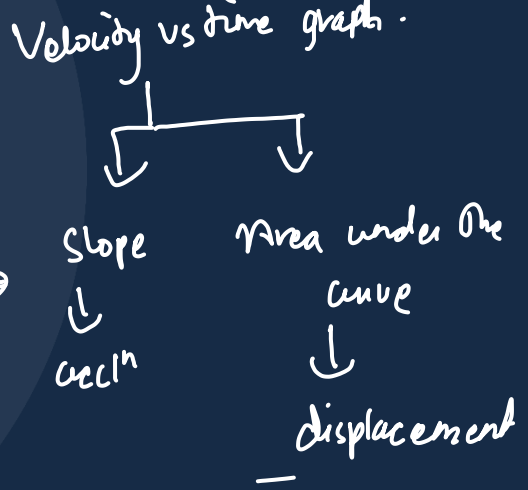
what does the area under the curve of velocity time graph represent?

(A) acceleration

(B) force

(C) displacement

(D) average velocity



13. जुत्ताका तलाउहरू किन प्रायः कुल्चिने गरिन्छ?

Why are the soles of shoes often treaded?

(A) To make them look more fashionable

(B) To increase the durability of the shoe

(C) To increase friction between the shoe and the ground

(D) To decrease the weight of the shoe

14. जब बल भुइँमा खस्छ त्यो उछालिन्छ। यो अनुसार-
When a ball drops on the floor it bounces. This is according to -

(A) Newton's first law of motion

(B) Newton's second law of motion

(C) Newton's third law of motion

(D) Newton's law of gravitation

15. तलका मध्ये कुन विस्थापनको विशेषता होइन?

Which of the following is not characteristic of displacement?

(A) It is a vector quantity.

(B) It has a direction.

(C) It is the shortest distance between two points.

(D) It is always positive.

vector → -ve.

16. शरीरमा छोटो समयको लागि क्रियाशील बल भनिन्छ
force acting on the body for short time is called

(A) momentum

(B) impulse

(C) resultant force

(D) none

17. बस अचानक सुरु हुँदा यात्रुहरूलाई पछाडि धकेलिन्छ। निम्न मध्ये कुन यसको उदाहरण हो?

Passengers are pushed back when a bus starts abruptly. Which of the following is an example of this?

(A) The first law of Newton

(B) The second law of Newton

(C) The third law of Newton

(D) None of Newton's laws apply to

18. तलका मध्ये कुन प्रक्षेपण गतिको उदाहरण होइन
which of the following is not an example of projectile motion

(A) throwing a cricket ball

(B) firing a canon

(C) throwing a stone from a cliff

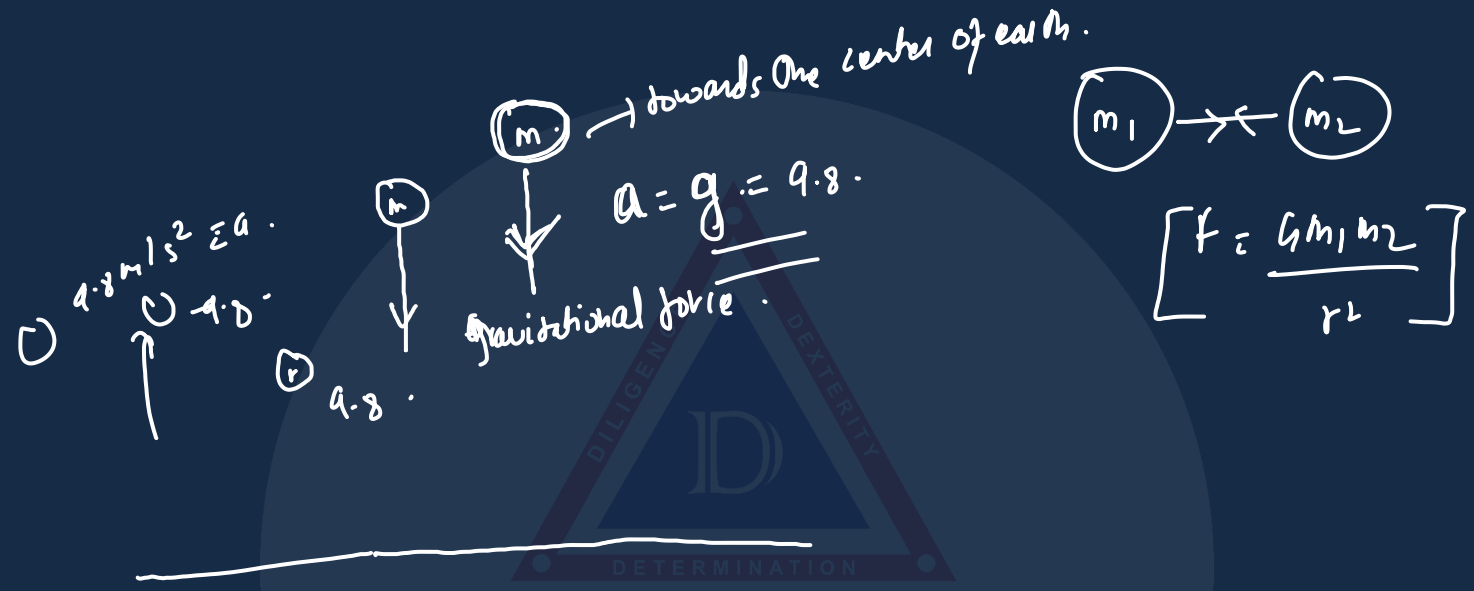
(D) planets revolving around the circle

19. यदि शरीरको शुद्ध बाह्य बल शून्य छ भने, यो छ
If a body's net external force is zero, it has
(A) zero velocity
(B) zero acceleration
(C) non-zero acceleration
(D) none.

फ्री फलिङ मोशन / Free Falling Motion

गुरुत्वाकर्षण बल (गुरुत्वाकर्षण बल) अन्तर्गत पृथ्वी तिर खसेका शरीर/वस्तुहरूलाई स्वतन्त्र रूपमा झर्ने निकायहरू/वस्तुहरू र शरीरहरू/वस्तुहरूको गतिलाई मुक्त पतन गति भनिन्छ।

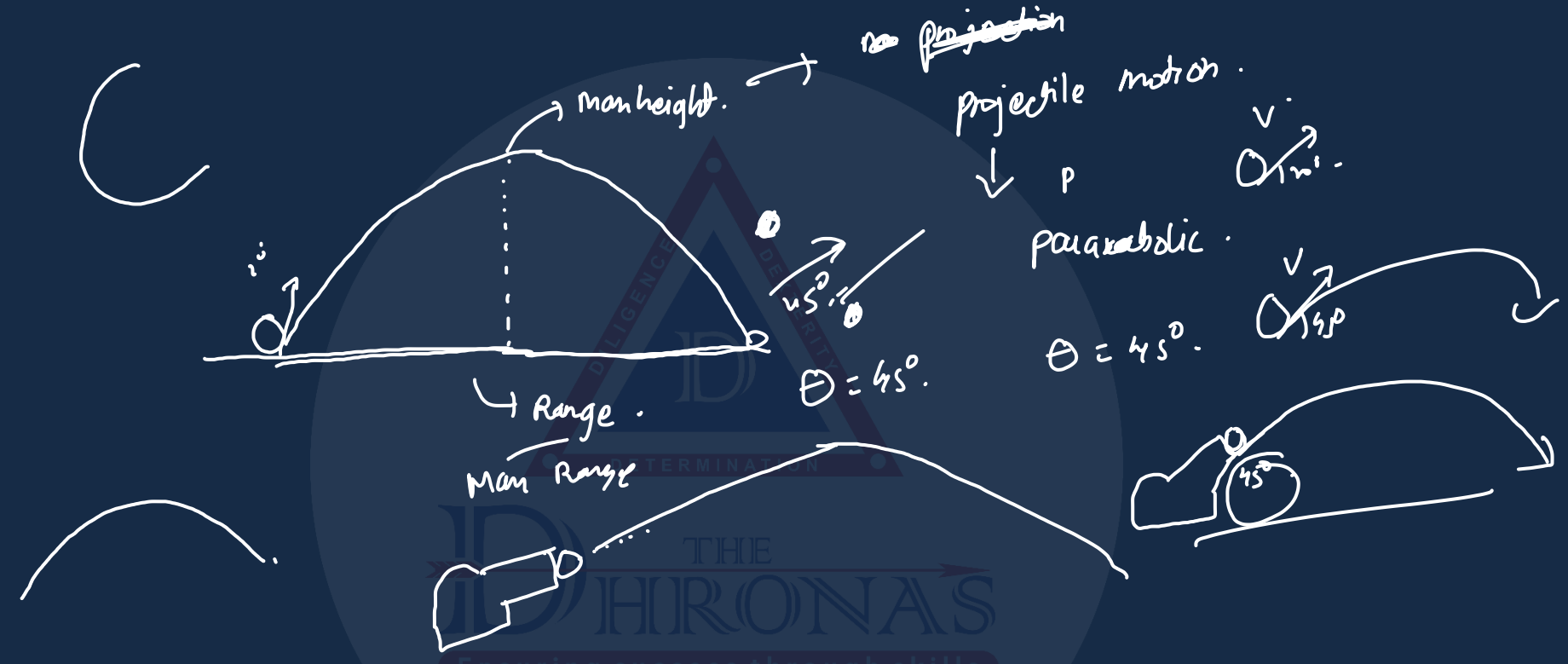
The bodies/objects falling towards the earth under the gravitational force (force of gravity) alone, are called freely falling bodies/objects and motion of the bodies/objects are called free falling motion.



प्रक्षेपण गति / Projectile Motion

यदि कुनै शरीरलाई क्षैतिज दिशाको साथ कोण B बनाउँदै निश्चित प्रारम्भिक वेगको साथ माथितिर प्रक्षेपण गरिएको छ भने, शरीरले दुई आयामी गतिको वर्णन गर्दछ जसको मार्ग (प्रक्षेपण) पराबोलिक हुन्छ र त्यस्तो शरीरलाई प्रक्षेपण भनिन्छ।

If a body is projected upward with a certain initial velocity u making an angle B with horizontal direction, then the body describes a two dimensional motion whose path (trajectory) is parabolic and such a body is called projectile.



1. कुन घटनाको आधारमा जेट इन्जिनले काम गर्छ
on the basis of which phenomenon does the jet engine work

(A) conservation of mass

(B) conservation of momentum

(C) conservation of energy

(D) none

2. बरफमा हिड्न गाह्रो छ

it is difficult to walk on ice because of

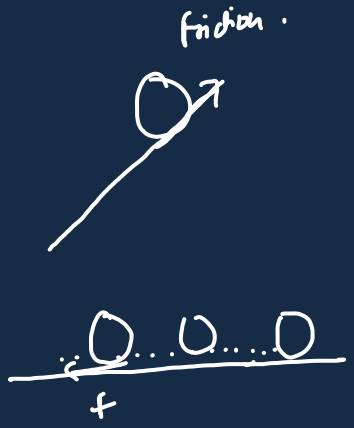
(A) absence of friction

(B) excess of friction

(C) no friction

(D) none

गति र गति को नियम / Motion and laws of motion



Laws of motion.
↳ ncert

Force

Contact Forces
1) Push.
2) Pull
3) friction.
↓
4) Normal Reaction

non contact forces.
(i) Gravitational Force.
(ii) Electrostatic "