UNITY TRAINING
ACADEMY FOR DDCET

LOGIN TO **WWW.UNITYEXAMS.COM**
AND START PREPARATION FOR DDCET

JOIN OUR **WHATSAPP GROUP**
AND ACCESS ALL MATERIAL

Practice Set 3 Solution

Classical MECHANICS

Topic : Linear motion, velocity, acceleration, force, Newton's laws of motion, linear momentum and impulse of force.

DDCET final exam weightage of this topic : 3 Questions (6 Marks)

Total Practice sets of this topic : 3 (sets) x 30 (questions) = 90 Questions

Total Practice tests of this topic : 3 (exams) x 25 (questions) = 75 Questions

Offline / Online during lecture : 4 (lectures) X 70 (Questions) = 280 Question

DDCET 2025

Total 445 Questions to practice this topic (Third week Oct 24)

(Last week of oct and first week of nov will be Diwali holidays)

91739 04421

UNITY TRAINING ACADEMY FOR DDCET

Section 1 : Linear motion, velocity, acceleration, force, Newton's laws of motion, linear momentum and impulse of force.

1 If a truck and a car have the same velocity, which one has greater momentum?

A) Car
B) Truck ✓
C) Both have the same momentum
D) Cannot be determined

2 A cyclist turns a corner without reducing speed. What changes?

A) Speed
B) Velocity ✓
C) Momentum remains constant
D) Acceleration is zero

3 Inertia depends on:

A) Velocity of the object
B) Mass of the object ✓
C) Shape of the object
D) Direction of motion

4 The greater the mass of an object, the greater its:

A) Velocity
B) Acceleration
C) Inertia ✓
D) Momentum remains constant

5 When a person jumps from a boat to the shore, the boat moves backward. This is an example of:

A) Newton's first law
B) Newton's second law
C) Newton's third law ✓
D) Conservation of energy

6 The force acting per unit area is called:

A) Pressure ✓
B) Momentum
C) Work
D) Energy

Section 1 : Linear motion, velocity, acceleration, force, Newton's laws of motion, linear momentum and impulse of force.

7 What will be the velocity of an object after 3 seconds if it starts from rest with an acceleration of 4 m/s^2?

A) 4 m/s
B) 8 m/s
C) 12 m/s ✓ (SOLUTION AT LAST PAGE)
D) 16 m/s

8 A rocket moves forward due to:

A) Force applied by astronauts
B) Air resistance
C) Exhaust gases pushing backward ✓
D) Magnetic force

9 The acceleration of a freely falling object is:

A) 9.8 m/s^2 ✓
B) 0 m/s^2
C) 4.9 m/s^2
D) 19.6 m/s^2

10 The momentum of an object depends on:

A) Its velocity
B) Its mass
C) Both mass and velocity ✓
D) Its acceleration

11 A force acting on an object for a short duration is called:

A) Constant force
B) Frictional force
C) Impulse force ✓
D) Contact force

12 Which of the following forces is always attractive?

A) Magnetic force
B) Gravitational force ✓
C) Frictional force
D) Normal force

Section 1 : Linear motion, velocity, acceleration, force, Newton's laws of motion, linear momentum and impulse of force.

13 Newton's first law is also known as:

A) Law of momentum
B) Law of inertia ✓
C) Law of acceleration
D) Law of impulse

14 A moving object stops due to:

A) Inertia
B) Friction ✓
C) Magnetic force
D) Gravitational force

15 If an object moves with a constant speed in a circular path, its acceleration is directed:

A) Tangent to the circle
B) Away from the center
C) Toward the center ✓
D) Perpendicular to the velocity

16 What happens to the acceleration of an object if both force and mass are doubled?

A) It remains the same ✓ (F = ma. now doubled , 2F = (2m) /a' , a' = 2F / 2m = a)
B) It doubles
C) It halves
D) It quadruples

17 A bullet fired from a gun has more momentum than the gun because:

A) It has greater mass
B) It has greater velocity ✓
C) It has greater acceleration
D) The force acting on it is smaller

18 What force is required to accelerate a 10 kg object at 3 m/s^2?

A) 3 N
B) 10 N
C) 30 N ✓ (F = ma , 10x3 = 30 N)
D) 100 N

Section 1 : Linear motion, velocity, acceleration, force, Newton's laws of motion, linear momentum and impulse of force.

19 What is the change in velocity called?

A) Momentum
B) Displacement
C) Acceleration ✓
D) Work

20 When a person steps out of a moving bus, they tend to fall forward. This is due to:

A) Friction
B) Gravity
C) Inertia ✓
D) Air resistance

21 Which of the following quantities is a vector?

A) Speed
B) Mass
C) Velocity ✓
D) Distance

22 If an object has uniform velocity, what is its acceleration?

A) Zero ✓
B) Positive
C) Negative
D) Constant

23 A car moving in a straight line covers equal distances in equal time intervals. This is an example of:

A) Accelerated motion
B) Uniform motion ✓
C) Non-uniform motion
D) Circular motion

24 The acceleration of an object moving in a straight line under uniform velocity is:

A) Zero ✓
B) Maximum
C) Equal to velocity
D) Depends on mass

Section 1 : Linear motion, velocity, acceleration, force, Newton's laws of motion, linear momentum and impulse of force.

25 The linear momentum of an object is defined as:

A) Mass × Acceleration
B) Mass × Velocity ✓
C) Acceleration × Velocity
D) Mass / Volume

26 A person standing in a moving bus falls backward when the bus starts suddenly. This is due to:

A) Gravity
B) Friction
C) Inertia ✓
D) Acceleration

27 The force required to keep a body moving with uniform velocity is:

A) Zero ✓
B) Equal to mass
C) Equal to acceleration
D) Infinite

28 The impulse experienced by an object is equal to the change in its:

A) Mass
B) Acceleration
C) Momentum ✓
D) Velocity

29 A ball is thrown vertically upwards. At the highest point, its velocity is:

A) Maximum
B) Zero ✓
C) Equal to initial velocity
D) Equal to acceleration

30 The tendency of an object to resist a change in motion is called:

A) Acceleration
B) Momentum
C) Inertia ✓
D) Displacement

Section 1 : Linear motion, velocity, acceleration, force, Newton's laws of motion, linear momentum and impulse of force.

Question 7 Solution :

$v = u + at$

$v = 0 = (4\ m/s^2 \times 3\ s) = 12\ m/s$