

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

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

Practice **Set 5**

Classical

MECHANICS

Topics :

Circular motion, angular velocity, angular acceleration, centripetal and centrifugal force, Work, energy, kinetic energy, potential energy, power.

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

Total Practice sets
of this topic :

$8 \text{ (sets) } \times 25 \text{ (questions) } = 200 \text{ Questions}$

Total Practice tests
of this topic :

$2 \text{ (exams) } \times 30 \text{ (questions) } = 60 \text{ Questions}$

Offline / Online
during lecture :

$4 \text{ (lectures) } \times 50 \text{ (Questions) } = 200 \text{ Question}$

Total 460 Questions to
practice this topic



91739 04421



UNITY TRAINING ACADEMY FOR DDCET

Section 1 :

Circular motion, angular velocity, angular acceleration, centripetal and centrifugal force, Work, energy, kinetic energy, potential energy, power.

1. Which formula gives centripetal force?

- A) $F = mv^2/r$
- B) $F = mr^2$
- C) $F = ma$
- D) $F = mv/r^2$

2. Which of the following is not a characteristic of circular motion?

- A) Constant speed
- B) Constant direction
- C) Centripetal force
- D) Periodicity

3. SI unit of work is:

- A) Newton
- B) Watt
- C) Joule
- D) Erg

4. If the angular velocity of a rotating object increases, its angular acceleration is:

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

5. Which of the following is NOT an example of circular motion?

- A) The motion of a satellite around the Earth
- B) The motion of the blades of a rotating fan
- C) The motion of a car moving in a straight line at a constant speed
- D) The motion of a point on the rim of a spinning wheel

6. If the angular velocity is constant, the angular acceleration is:

- A) Maximum
- B) Minimum
- C) Zero
- D) Cannot be determined

7. The direction of the centripetal acceleration is always:

- A) Tangential to the circle
- B) Radially outward
- C) Radially inward
- D) Opposite to the direction of motion

8. In a rotating frame of reference, the centrifugal force acts:

- A) Towards the center of rotation
- B) Away from the center of rotation
- C) Tangent to the direction of motion
- D) Opposite to the direction of angular velocity

9. Kinetic energy is the energy possessed by an object due to its:

- A) Position
- B) Motion
- C) Mass
- D) Acceleration

10. The formula for kinetic energy is:

- A) mgh
- B) $\frac{1}{2}kx^2$
- C) $\frac{1}{2}mv^2$
- D) Fd





UNITY TRAINING ACADEMY FOR DDCET

Section 1 :

Circular motion, angular velocity, angular acceleration, centripetal and centrifugal force, Work, energy, kinetic energy, potential energy, power.

11. Potential energy is the energy possessed by an object due to its:

- A) Motion
- B) Temperature
- C) Position or configuration
- D) Velocity

12. Elastic potential energy is stored in:

- A) A moving object
- B) A stretched or compressed spring
- C) An object at a certain height
- D) A stationary object

13. 1 Watt is equal to:

- A) 1 Joule/second
- B) 1 Newton/meter
- C) 1 kg m²/s³
- D) Both a and c

14. If a force of 10 N is applied to an object and it moves a distance of 5 m in the direction of the force, the work done is:

- A) 2 J
- B) 5 J
- C) 50 J
- D) 0 J

15. Which of the following is NOT a form of energy?

- A) Heat
- B) Light
- C) Force
- D) Sound

16. The ability of a system to perform work is known as:

- A) Power
- B) Energy
- C) Momentum
- D) Impulse

17. Potential energy is associated with the _____ of an object within a force field.

- A) Velocity
- B) Acceleration
- C) Position
- D) Momentum

18. What provides the centripetal force in planetary motion?

- A) Air resistance
- B) Tension
- C) Gravitational attraction
- D) Magnetic force

19. Centripetal force can be provided by:

- A) Tension
- B) Gravity
- C) Friction
- D) All of these

20. Work done in lifting an object is stored as:

- A) Kinetic energy
- B) Potential energy
- C) Thermal energy
- D) Light energy





UNITY TRAINING ACADEMY FOR DDCET

Section 1 :

Circular motion, angular velocity, angular acceleration, centripetal and centrifugal force, Work, energy, kinetic energy, potential energy, power.

21. The unit of angular acceleration is _____.
A) m/s^2
B) rad/s^2
C) m/s
D) rad
22. If a moving object comes to rest, its kinetic energy becomes:
A) Doubled
B) Remains same
C) Zero
D) Infinite
23. One joule is equal to:
A) 1 N/m
B) $1 \text{ N}\cdot\text{m}$
C) 1 W
D) 1 N/s
24. The time rate of doing work is defined as:
A) Energy
B) Momentum
C) Power
D) Impulse
25. A collision in which both momentum and kinetic energy are conserved is called:
A) Inelastic collision
B) Perfectly inelastic collision
C) Elastic collision
D) Explosion

