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 5 Solution

Classical MECHANICS

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

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

Total Practice sets of this topic :	8 (sets) x 25 (questions) = 200 Questions
Total Practice tests of this topic :	2 (exams) x 30 (questions) = 60 Questions
Offline / Online during lecture :	4 (lectures) X 50 (Questions) = 200 Question

DDCET 2025

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

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 m^2/s^3
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

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 N·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