

# 39 Lecture - MTH101

## Important Mcqs

What is the formula for calculating work done by a force  $F$  over a distance  $d$  in the direction of the force?

- a)  $W = Fd$
- b)  $W = F/d$
- c)  $W = F^2d$
- d)  $W = Fd^2$

Answer: a)  $W = Fd$

Work is defined as:

- a) The force required to move an object
- b) The distance an object moves
- c) The product of force and distance moved in the direction of the force
- d) The product of mass and acceleration

Answer: c) The product of force and distance moved in the direction of the force

What is the formula for calculating the work done by a constant force over a displacement?

- a)  $W = Fd$
- b)  $W = Fd \cos \theta$
- c)  $W = Fd \sin \theta$
- d)  $W = F/d$

Answer: b)  $W = Fd \cos \theta$

What is the work done by a force of 10 N over a displacement of 5 m at an angle of 30 degrees to the horizontal?

- a) 25 J
- b) 43.3 J
- c) 50 J
- d) 86.6 J

Answer: b) 43.3 J

What is the area under a velocity-time graph?

- a) Velocity
- b) Acceleration
- c) Displacement
- d) Distance

Answer: d) Distance

The integral of force with respect to distance gives:

- a) Acceleration
- b) Work
- c) Power
- d) Momentum

Answer: b) Work

What is the formula for calculating the work done by a variable force over a displacement?

- a)  $W = ? F dx$
- b)  $W = ? F dt$
- c)  $W = ? F ds$

d)  $W = ? F dv$

Answer: c)  $W = ? F ds$

What is the work done by a force of 5 N that varies with distance  $x$  from 0 to 2 m given by  $F = 2x^2$ ?

a) 10 J

b) 20 J

c) 30 J

d) 40 J

Answer: b) 20 J

What is the formula for calculating the work done by a force  $F$  over a distance  $d$  with variable force given by  $F(x)$ ?

a)  $W = ? F(x) dx$

b)  $W = ? F(x) ds$

c)  $W = F(x)d$

d)  $W = F(x)/d$

Answer: a)  $W = ? F(x) dx$

If the force acting on an object is perpendicular to the direction of motion, what is the work done by the force?

a) Zero

b) Positive

c) Negative

d) Cannot be determined

Answer: a) Zero