FORCE AND MOTION PROBLEMS

Q1

The average force necessary to stop a hammer with 25 Ns momentum 0.2s expressed in 'N' is

A) 500
B) 50
C) 125
D) 25

Q2

Newton's third law concerns the forces of interaction between two bodies. Which of the following statement relating to the third law is not correct?

A) Two forces must be the same types
B) Two forces must act on different bodies
C) Two forces always opposite in direction
D) The two forces are equal and opposite so the bodies are in equilibrium

Q3

A sledge of mass 25kg is pulled across level ground with a horizontal force of 60N. The constant force of friction is 20N. What is the acceleration of the sledge?

A) $0.5m/s^2$
B) $2m/s^2$
C) $1.6m/s^2$
D) $0.2m/s^2$

Q4

A handball is tossed vertically upward with a velocity of 19.6 meters per second. Approximately how high will it rise?

A) 15m
B) 25m
C) 20m
D) 30m

Q5

The engine of a car produces an acceleration of 6 m s^{-2} in the car. If this car pulls another car of the same mass, then the acceleration would be

A) 6 m s^{-2}

B) 12 m s^{-2}

C) 3 m s^{-2}

D) 1.5 m s^{-2}

Q7

A cricket ball of mass 0.5 kg strikes a bat normally with a velocity of 30 ms^{-1} and rebounds with a velocity of 20 ms^{-1} in the opposite direction. The impulse of the force exerted by the ball on the bat is

A) 0.5 Ns

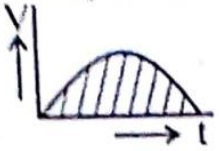
B) 25 Ns

C) 1.0 Ns

D) 50 Ns

Q8

The Figure shows the velocity time graph of a one dimensional motion. Which of the following characteristic of the particle is represented by the shaded area?



A) Distance covered

B) Momentum

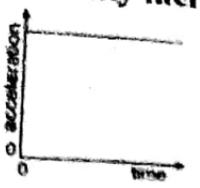
C) Speed

D) Acceleration

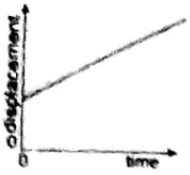
Q9

Which graph represents the motion of a car that is travelling along a straight road with a uniformly increasing speed?

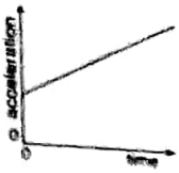
A)



B)



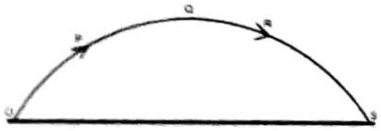
C)



D)

Q10

A projectile is launched at point O and follows the path OPQRS, as shown. Air resistance may be neglected.



Which statement is true for the projective when it is at the highest point Q of its path?

A) The horizontal component of the projectile's acceleration is zero.

B) The horizontal component of the projectile's velocity is zero.

C) The kinetic energy of the projectile is zero.

D) The momentum of the projectile is zero.