



Sample test Physics

بوليتكنك
POLYTECHNIC

“Building the Future of UAE Technologies”

Sample questions of the Physics part of the exam

Q1 1 mark

What is $0.679/0.80$ to the proper number of significant figures?

- A. 0.849
- B. 0.8488
- C. 0.85**
- D. 0.8

Q2 1 mark

The components of vector A are given as follows:

$$A_x = +9.7$$

$$A_y = -5.6$$

The magnitude of A is closest to:

- A. 11**
- B. 10
- C. 9.0
- D. 13

Q3 1 mark

A car accelerates from 7.0 m/s to 20 m/s at a rate of 3.0 m/s^2 . How far does it travel while accelerating?

- A. 59 m**
- B. 100 m
- C. 177 m
- D. 35 m

Q4 2 marks

A ball is thrown straight upward with a velocity of 26 m/s . How much time passes before the ball strikes the ground? Disregard air resistance.

- A. 2.7 s
- B. 0.8 s
- C. 1.6 s
- D. 5.3 s**

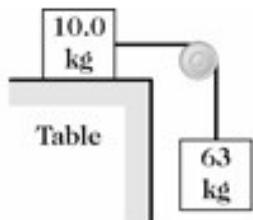
Q5 1 mark

If you were to move into outer space far from any stars or planets,

- A. your mass would change, but your weight would not change.
- B. your weight would change, but your mass would not change.**
- C. neither your weight nor your mass would change.
- D. both your weight and mass would change.
- E. None of these is true.

Q6 2 marks

A 10.0 kg block on a table is connected by a string to a 63 kg mass, which is hanging over the edge of the table. Assuming that frictional forces may be neglected, what is the magnitude of acceleration of the block when the other block is released?



- A. 9.0 m/s^2
- B. 8.5 m/s^2**
- C. 7.5 m/s^2
- D. 8.1 m/s^2

Q7 1 mark

A spring with a spring constant of 11 N/m is stretched from equilibrium to 2.9m. How much work is done in the process?

- A. 46 J**
- B. 60 J
- C. 92 J
- D. 23 J

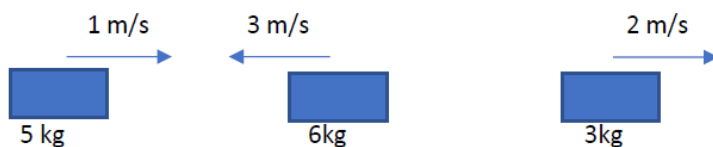
Q8 2 marks

A child pulls on a wagon with a force of 75N. If the wagon moves a total of 42m in 2.9 min, what is the average power generated by the child, in watts?

- A. 27 W
- B. 22 W
- C. 18 W**
- D. 24 W

Q9 1 mark

What is the total momentum of the system below?



- A. -7 kg m/s**
- B. -19 kg m/s
- C. 17 kg m/s

D. 7 kg m/s

Q10 1 mark

A wheel accelerates from rest to 59 rad/s at a rate of 37 rad/s². Through what angle (in radians) did the wheel turn while accelerating?

A. 59 rad

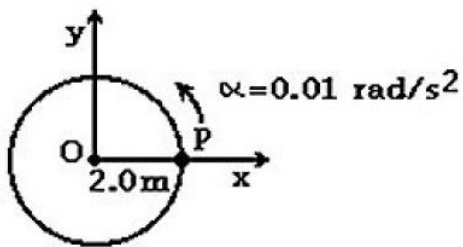
B. 94 rad

C. 47 rad

D. 38 rad

Q11 2 marks

Point P is on the rim of a wheel of radius 2.0 m. At time $t = 0$, the wheel is at rest, and P is on the x-axis. The wheel undergoes a uniform angular acceleration of 0.01 rad/s² about the center O.



In the figure above, the tangential acceleration of P at time $t = 0$ s is closest to:

A. 0.020 m/s²

B. 0.010 m/s²

C. zero

D. 0.015 m/s²

E. 0.005 m/s²

Q12 2 marks

A force of 20 N is applied to the end of a 0.63 m torque wrench at an angle 45° from a line joining the pivot point to the handle. What is the magnitude of the torque generated about the pivot point?

A. 8.9 N·m

B. 12.6 N·m

C. 9.7 N·m

D. 14.1 N·m