50 Years of Excellence

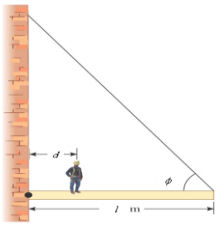
THE UNIVERSITY OF JORDAN

THE UNIVERSITY OF JORDAN
PHYSICS DEPARTMENT
GENERAL PHYSICS III, 0302104 (1st EXAM)
SUMMER SEMESTER 2012/2013 (JUNE 27th, 2013)

Student's Name (In Arabic): Student's Number:
Instructor's Name (In Arabic): Exam Time: (3:30 – 4:30) Pm

Useful Information: $M_E = 5.97 \times 10^{24}$ kg
$R_E = 6.37 \times 10^{6}$ m
$G = 6.67 \times 10^{-11}$ N.m^2/kg^2

1. Given l = 10 m, Weight of Beam = 250 N, Weight of Person = 800 N, d = 2 m, and ϕ = 53°; the tension in the cable (in N) is:



a. 120
b. 140
c. 160
d. 180
e. 200

2. At t_1 = 10 sec, a car is at x_1 = 500 m, and at t_2 = 20 sec, it is at x_2 = 200 m. The magnitude of its average velocity is:

a. 30 **b.** 2.0 **c.** 18
d. 1.8 **e.** 20

3. A car moves along a straight highway at an average velocity of 150 km/h. How long (in hours) will it take to travel 450 km?

a. 1.0 **b.** 3.0 **c.** 5.0
d. 1.5 **e.** 4.5

4. A car accelerates from rest to 43.2 m/s in 3.6 s. Its average acceleration (in m/s^2) is:

a. 0.08 **b.** 2.4 **c.** 6.3
d. 12 **e.** 5.0

5. A ball falls from rest from a cliff and moves under the influence of gravity. How fast (in m/s) will it be moving after 6 s?

a. 6 **b.** 10 **c.** 20
d. 40 **e.** 60

6. A race car reaches a velocity of 100 m/s with an acceleration of 20 m/s. How far will it travel (in m) while it is accelerating if it is initially at rest?

a. 100 **b.** 200 **c.** 250
d. 75 **e.** 50

7. A ball is dropped from a window 45 m above the ground. The speed (in m/s) of the ball when it strikes the ground is:

a. 30 **b.** 20 **c.** 10
d. 5 **e.** zero

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8. A rock is thrown upward at 20 m/s from a window 60 m above the ground. When does it reach its highest point?

a. 5 s **b.** 4 s **c.** 3 s
d. 2 s **e.** 1 s

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9. Two vectors are given as $\mathbf{A} = 2\,\hat{\boldsymbol{x}} + \hat{\boldsymbol{y}}$ and $\mathbf{B} = 4\,\hat{\boldsymbol{x}} + 7\,\hat{\boldsymbol{y}}$. If $\mathbf{C} = \mathbf{A} + \mathbf{B}$, the magnitude of **C** is:

a. 6 **b.** 8 **c.** 14
d. 100 **e.** 10

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10. In the previous question, the angle (in degrees) that **C** makes with the x-axis is:

a. 36.9 **b.** 53.1 **c.** 126.9
d. 45 **e.** can not be determined

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11. A ball is thrown downward from an unknown height above the ground with an initial speed of 20.0 m/s. It strikes the ground 3.00 s later. The initial height (in m) of the ball above the ground is:

a. 43.0 **b.** 105 **c.** 80.0
d. 138 **e.** 210

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12. A truck travels 50.0 m in 5.00 seconds while smoothly slowing down to a final speed of 2.00 m/s. The initial speed (in m/s) of the truck is:

a. 16.0 **b.** 3.70 **c.** 18.0
d. 7.30 **e.** 21.0

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13. In the previous question, the angle (in degrees) that **C** makes with the x-axis is:

a. 36.9 **b.** 53.1 **c.** 126.9
d. 45 **e.** can not be determined

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14. A ball is thrown downward from an unknown height above the ground with an initial speed of 20.0 m/s. It strikes the ground 3.00 s later. The initial height (in m) of the ball above the ground is:

a. 43.0 **b.** 105 **c.** 80.0
d. 138 **e.** 210

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15. A truck travels 50.0 m in 5.00 seconds while smoothly slowing down to a final speed of 2.00 m/s. The initial speed (in m/s) of the truck is:

a. 16.0 **b.** 3.70 **c.** 18.0
d. 7.30 **e.** 21.0

Answer Sheet

List your final answer in this table. Only the answer in this table will be graded.

Question	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Answer									
Question	Q10	Q11	Q12	Q13	Q14	Q15			
Answer									

Good Luck