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University of Jordan
Faculty of Science
Department of Physics

Date: 2/11/2015
First Semester; 2015-16
Time: 5:00 – 6:00 pm

**General Physics 1 – PHYS. 0302101**

***First Exam***

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Student's Number: 0156387 Section: 10-11

Take $g = 9.8\ m/s^2$.

*Fill in the Answer Table below with your chosen answers.*

## Answer Table

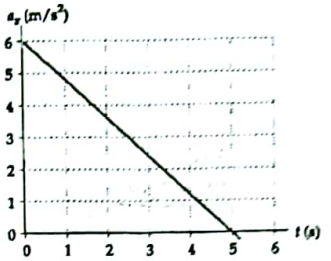
| Q | A | B | C | D | E | Q | A | B | C | D | E |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | C | | 6 | X | | | | |
| 2 | | X | | | | 7 | | X | | | X |
| 3 | | | | | X | 8 | | | | | |
| 4 | | | X | | | 9 | | | | | |
| 5 | | | X | | | 10 | X | | | | |

1. Two vectors lying in the *xz* plane are given by **A** = 2**i** + 3**k** and **B** = -**i**+ 2**k**. The product **A**×**B** is:
   (A) **j**; (B) –**j**; (C) 7**k**; (D) -7**j**; (E) **i** + 5**k**.

2. The value of **i**.(**i** + **j** + **k**) is:
   (A) 0; (B) 1; (C) 3; (D) –**j** + **k**; (E) 2**i**.

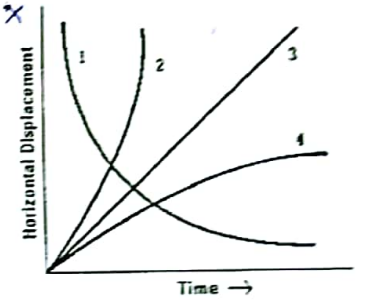
3. The plane polar coordinates of a vector **A** are r = 15 and θ = 80°. Another vector **B** = 12**i** – 16**j**. The *magnitude* of **C** = **A** – **B** is:
   (A) 12; (B) 16; (C) 15; (D) 0; (E) 32.

4. The position of a particle moving along the *x* axis is given by $x = 6.0t^2 - 1.0t^3$, where *x* is in meters and *t* in seconds. Its position (in m) when it achieves (يحقق) its maximum velocity in the positive x direction is:
   (A) 2.0; (B) 12; (C) 16; (D) 24; (E) 32.




5. The above figure shows the acceleration $a_x$ (m/s$^2$) versus time $t$ (s) for a particle moving along the $x$ axis. At $t$ = 0, the particle has a velocity $v_x$ = +15 m/s. At $t$ = 5.0 s, its velocity (in m/s) is:
(A) +15; (B) -15; (C) +30; (D)0; (E) -1.2.

6. A projectile is fired at an angle of 45° above the horizontal. If air resistance is neglected, the 'curve' that best represents the *horizontal displacement* of the projectile as a function of travel time is:
(A) 3; (B) 2; (C) 1; (D) 4; (E) None of these.




7. A particle moves in the *xy* plane with a constant acceleration of **a** = -4**j** (in m/s$^2$). At time t = 0, its position (in m) is 10**i** and its velocity (in m/s) is -2.0**i** + 8.0**j**.
At t = 2.0 s, the *distance* (in m) of the particle from the origin is:
(A) 6.4; (B) 10; (C) 8.9; (D) 2.0; (E) 6.2.

8. A projectile is thrown from a height of 30 m above the ground with a velocity of 30 m/s in the horizontal direction. Its *speed* (in m/s) just before it strikes the ground is:
(A) 31; (B) 35; (C) 54; (D) 43; (E) 39.

9. A car moving with a constant speed of 60 m/s completes one revolution around a circular track (مسار) in 50 s. The magnitude of its acceleration (in m/s$^2$) is:
(A) 6.3; (B) 8.8; (C) 9.4; (D) 7.5; (E) 5.3.

10. The speed of a particle moving in a circle 2.0 m in radius increases at a constant rate of 4.4 m/s$^2$. At an instant when the magnitude of the total acceleration is 6.0 m/s$^2$, the speed (in m/s) of the particle is:
(A) 2.9; (B) 3.0; (C) 1.9; (D) 3.5; (E) 3.9.