

(الفيزياء 1 (الفصل الصيفى

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الأحد 5/9/2021

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Faculty of Computers & Information, Assiut University

1st Level

Final Exam

Duration: 2 hours

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* (الأسم الرابعى (بالعربى فقط

شريف مجدى هلال صدقى

2

* رقم الجلوس

1620176028

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* المستوى

- الاول
- الثاني
- الثالث
- رابعة 2013
- رابعة 2014
- رابعة 2015
- رابعة 2016
- رابعة 2017

4

* البرنامج

- عام
- بايو
- هندسة

5

* رقم المعمل

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6

* رقم الكمبيوتر

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8

السؤال

(1 Point)

The position, x , of an object is given by the equation $x = A + \underline{B}t + Ct^2$, where t refers are the dimensions of A, B, and C?

- A. m, m, m
- B. m, s, s^2
- C. m, m/s, m/s^2
- D. m/s , m/s^2 , m/s^3

a

b

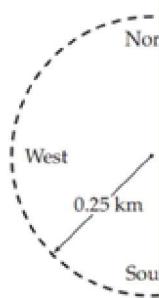
c

d

السؤال
(1 Point)

A car travels counterclockwise around a flat circle of radius 0.25 km at a constant speed of 20 m/s. When the car is at point A as shown in the figure, what is the car's acceleration?

- A.** 1.6 m/ s^2 , east
- B.** zero
- C.** 1.6 m/ s^2 , west
- D.** 1.6 m/ s^2 , north



- a
- b
- c
- d

السؤال
(1 Point)

A rock is thrown straight up with an initial velocity of 24.5 m/s. What is the time the rock reaches maximum height before starting to fall downward?

- A.** 9.80 sec
- B.** 19.6 sec
- C.** 30.6 sec
- D.** 2.5 sec

- a
- b
- c

d

11

السؤال
(1 Point)

The position of a particle moving along the x axis is given by $x=(21+22t-6t^2)$ m, where t is the time in seconds. What is the average velocity during the time interval $t = 1.0$ s to $t = 3.0$ s?

- A.** -6.0 m/s
- B.** -4.0 m/s
- C.** -2.0 m/s
- D.** -8.0 m/s

a

b

c

d

12

السؤال
(1 Point)

An object moving in the +x axis experiences an acceleration of 2.0 m/s^2 . This means

- A.** traveling at 2.0 m in every second.
- B.** traveling at 2.0 m/s in every second.
- C.** changing its velocity by 2.0 m/s .
- D.** increasing its velocity by 2.0 m/s in every second.

a

b

c

d

13

السؤال
(1 Point)

If vector A = (-3.0, -4.0) and vector B = (+3.0, -8.0), what is the magnitude of vector C = A + B?

- A. 13.3
- B. 16.6
- C. 14.4
- D. 7.2

a

b

c

d

14

السؤال
(1 Point)

The position of a particle in x direction given by $x=(-4t+2t^2)$ m the instantaneous velocity of particle at $t=2$ sec.

- A. 2.5 m/s.
- B. 6 m/s
- C. Zero.
- D. 8.5 m/s.

a

b

c

d

d

15

السؤال
(1 Point)

I Ignoring air resistance, the horizontal component of a projectile's velo

- A. is zero.
- B. remains constant.
- C. continuously increases.
- D. continuously decreases.

a

b

c

d

16

السؤال
(1 Point)

A ball is thrown with a velocity of 40 m/s at an angle of 60° above the horizontal. What is the instantaneous velocity at the exact top of its trajectory?

- A. 10 m/s
- B. 17 m/s
- C. 20 m/s
- D. Zero

a

b

c

d

17

السؤال

(1 Point)

1.

A projectile is launched with an initial velocity of 60.0 m/s at an angle of 30.0° above the horizontal. How far does it travel?

- A.** 152 m
- B.** 160 m
- C.** 184 m
- D.** 318 m

a

b

c

d

18

السؤال

(1 Point)

A cube with an edge of **1.5 ft** has a volume of

- A.** $1.2 \times 10^2 \text{ m}^3$.
- B.** $9.5 \times 10^{-2} \text{ m}^3$.
- C.** 10.5 m^3 .
- D.** 3.375 m^3 .

a

b

c

d

19

السؤال

(1 Point)

The position of a particle as it moves along the x axis is given by $x = 15e^{-2t}\text{m}$, s. What is the acceleration of the particle at $t = 1\text{ s}$?

I

- A.** 22 m/s
- B.** 60 m/s
- C.** 8.1 m/s
- D.** 35 m/s

a

b

c

d

السؤال

(1 Point)

If vector B is added to vector A, under what condition does the resultant vector equal to zero

- a. A and B are parallel and in the same direction
- b. A and B have the same magnitude and in the opposite direction
- c. A and B are perpendicular
- d. A and B have the same magnitude and in the same direction

 a b c d**السؤال**

(1 Point)

A long-jumper leaves the ground at an angle of 30° above the horizontal and at a m/s. what is maximum height?

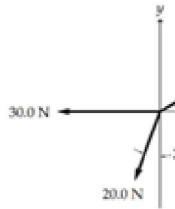
- a. 10.2 m
- b. 5.1 m
- c. 1.275 m
- d. 2.55 m

 a b c d

السؤال
(1 Point)

- I The three forces shown act on a particle. What is the magnitude of the resultant of these three forces?

- A. 27.0 N
- B. 33.2 N
- C. 36.3 N
- D. 23.8 N



- a
- b
- c
- d

السؤال
(1 Point)

- A particle moving along the x axis has a position given by $x = (24t - 2.0t^3)$ m, where t in s. What is the magnitude of the acceleration of the particle at the instant when its velocity is zero?

- A. 24 m/s²
- B. zero
- C. 12 m/s²
- D. 6 m/s²

- a

b

c

d

24

السؤال

(1 Point)

Winch of the Following équations are dimensional c

a. $V_f = V_i + ax$

b. $Y = A(m) \sin\theta + at^2$

c. $F = mgh$

d. $X_f = X_i + v_i t + \frac{1}{2} at^2$

a

b

c

d

25

السؤال

(1 Point)

In 2.0 s, a particle moving with constant acceleration along the x axis goes from $x = 1$ m. The velocity at the end of this time interval is 10 m/s. What is the acceleration of the particle?

- A. $+15 \text{ m/s}^2$
- B. $+20 \text{ m/s}^2$
- C. -20 m/s^2
- D. -10 m/s^2

a

b

c

d

26

السؤال

(1 Point)

A particle moves at a constant speed in a circular path with a radius of 2.06 cm. If it makes four revolutions each second, what is the magnitude of its acceleration?

- A. 20 m/s^2
- B. 18 m/s^2
- C. 13 m/s^2
- D. 15 m/s^2

a

b

c

d

السؤال
(1 Point)

At the lowest point in a vertical dive (radius = 0.58 km), an airplane has a speed of 30 m/s. The speed is not changing. Determine the magnitude of the acceleration of the pilot at this lowest point.

- A. 26 m/s^2
- B. 21 m/s^2
- C. 16 m/s^2
- D. 12 m/s^2

a

b

c

d

السؤال
(1 Point)

All of the following are base units of the SI system except:

- A. kilogram.
- B. kelvin.
- C. meter.
- D. volt.

a

b

c

d

29

السؤال
(1 Point)

Which expression is dimensionally consistent with an expression that would yield a velocity?

- A. v/x
- B. v^2/x
- C. x/t
- D. $v^2 \cdot t$

a

b

c

d

30

السؤال
(1 Point)

The position of a particle moving along the x -axis is given by $x(t) = 7t^3 - 2t^2$, where t is in seconds. What is the magnitude of the acceleration?

- (a) -27 m/s^2
- (b) 27 m/s^2
- (c) -12 m/s^2
- (d) Neither of these

a

b

c

d

31

السؤال
(1 Point)

Which of the following quantities has the same dimensions as kinetic energy

Note: $[a] = [g] = LT^{-2}$; $[h] = L$ and $[v] = LT^{-1}$

- (a) ma**
- (b) mvx**
- (c) mv**
- (d) mgh**

a
 b
 c
 d

32

(1 Point)

The polar coordinates of a point given by (r, θ) , $(5m, 60^\circ)$ the cartesian coordinates:

- A.** $(4.3, 2.5)$.
- B.** $(2.5, 4.3)$.
- C.** $(10, 5.7)$.
- D.** $(-2.5, -4.3)$.

a
 b
 c

d

33

(1 Point)

If $\mathbf{A} = 12\mathbf{i} - 16\mathbf{j}$ and $\mathbf{B} = -24\mathbf{i} + 10\mathbf{j}$, what is the direction of the vector $\mathbf{C} = 2$

- A.** -49°
- B.** -41°
- C.** -90°
- D.** $+49^\circ$

a

b

c

d

34

(1 Point)

If vector B is added to vector A, the result is $6\mathbf{i} + \mathbf{j}$. If B is subtracted from A, the result is $10\mathbf{i} - 14\mathbf{j}$. What is the magnitude of A?

- A.** 5.1
- B.** 4.1
- C.** 5.4
- D.** 5.8

a

b

c

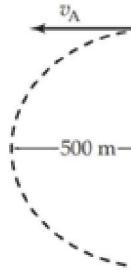
d

35

(1 Point)

A car travels in an oval path as shown below. $V_A = 25 \text{ m/s}$, West, and $V_B = 20 \text{ m/s}$, North. The ratio of the magnitude of the centripetal acceleration at B to that at A, a_B/a_A is:

- A. 0.512
- B. 0.64
- C. 0.80
- D. 1.56



a

b

c

d

36

(1 Point)

The cartesian coordinates of a point in the X-Y plane are $(3.5, 2.5) \text{ m}$, the polar coordinates are.

- A. $(4.3, 54.5^\circ)$
- B. $(4.3, 35.5^\circ)$
- C. $(2.45, 144.5^\circ)$
- D. $(2.45, 35.5^\circ)$

a

b

c

d

37

The distance travelled is the magnitude of the displacement vector.
(1 Point)

True

False

38

Physical quantities that have both magnitude and direction are represented by vectors.
(1 Point)

True

False

39

The tangential acceleration arises from the change in speed
(1 Point)

True

False

40

Dimensional analysis can give you the numerical value of constants of proportionality that may appear in an algebraic expression.

(1 Point)

True

False

41

One mole of a substance is that amount of it that consists of Avogadro's Number of atoms.

(1 Point)

True

False

42

When the velocity of a particle does not change with time, the particle is said to be accelerating

(1 Point)

True

False

43

In the circular motion the acceleration is called centripetal acceleration and points outward the center.

(1 Point)

True

False

44

The range of the particle in the projectile motion is the distance travelled in the X-direction.

(1 Point)

True

False

45

An object can accelerate if its speed is constant.

(1 Point)

True

False

46

(1 Point)

The distance vector $\vec{\Delta r}$ is defined as the difference between the final and initial pos

True

False

47

The Dimensional of force is ML2T-2
(1 Point)

True

False

48

Speed of a particle is not equal to the magnitude of its instantaneous velocity.
(1 Point)

True

False

49

The radial component of the centripetal acceleration results from the change in direction of the velocity vector.
(1 Point)

True

False

50

The displacement vector is define as the summation of the final and the initial position vectors

(1 Point)

True

False

51

The motion in two dimensions with a constant acceleration can be considered as two dependent motions one along x-direction and the second along y-direction

(1 Point)

True

False

52

In the projectile motion the effect of air resistance is negligible

(1 Point)

True

False

53

A scalar quantity has only magnitude and no direction.

(1 Point)

True

False

54

Question

(1 Point)

The instantaneous acceleration is the limit of average acceleration as Δt approaches zero

True

False

55

Question

(1 Point)

The acceleration of a projectile is equal to zero when it reaches the end of its trajectory.

True

False

56

Motion of an object in a circular path with constant speed, is called uniform circular motion.

(1 Point)

True

- False

57

The magnitude of the velocity is called the average velocity.
(1 Point)

- True

- False

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