



Name:

Student number:

Check your section with [X] below:

General Physics (211101)

<input checked="" type="checkbox"/> Section	Lecture time	Day	Lecturer
<input type="checkbox"/> 1	(09:45 - 11:15)	Sun. & Tue	Mr. Mustafa Al-zyout
<input type="checkbox"/> 2	(12:45 - 14:15)	Sun. & Tue	Mr. Mustafa Al-zyout
<input type="checkbox"/> 3	(09:45 - 11:15)	Mon. & Wednes.	Mr. Mustafa Al-zyout
<input type="checkbox"/> 4	(11:15 - 12:45)	Sun. & Tue	Ms. Mariam Al-qderat
<input type="checkbox"/> 5	(14:15 - 15:45)	Sun. & Tue	Ms. Mariam Al-qderat
<input type="checkbox"/> 6	(08:15 - 09:45)	Mon. & Wednes.	Ms. Mariam Al-qderat

Check your correct answer with X in the table below:

Q. No.	A	B	C	D
1				X
2			X	
3		X		
4			X	
5		X		
6	X			
7		X		
8	X			
9				X
10			X	
11	X			
12				X
13	X			
14		X		
15				X

Useful information's: $g = 9.8 \text{ m/s}^2$

- Each of the following problems has 2 point.
- You have a total of 15 questions.
- The use of a non-programmable calculator is allowed only.

Good Luck

Mr. Mustafa Al-Zyout (Module Coordinator)

Q.01) A vector is a physical quantity that has:

- (A) No direction nor a magnitude (B) Only a magnitude and no direction.
(C) Only a direction and no magnitude (D) Both a magnitude and a direction

Q.02) Given the following three vectors $\vec{B}_1 = 4\hat{i} - 2\hat{j}$, $\vec{B}_2 = -2\hat{i} + 3\hat{j}$ and $\vec{B}_3 = -4\hat{j}$. Determine the resultant vector: $\vec{B} = \vec{B}_1 + \vec{B}_2 + \vec{B}_3$.

- (A) $2\hat{i} - 4\hat{j}$ (B) $2\hat{i} - 6\hat{j}$ (C) $2\hat{i} - 3\hat{j}$ (D) $2\hat{i} - 5\hat{j}$

Q.03) The vectors \vec{A} and \vec{B} are given by: $\vec{A} = 3\hat{i} - 4\hat{j}$ and $\vec{B} = -3\hat{i} + 3\hat{k}$. Find the angle between the directions of two vectors.

- (A) 109.4° (B) 115.1° (C) 118.7° (D) 121.0°

Q.04) Two vectors lying in the (x-y) plane are given by the equations $\vec{A} = 5\hat{i} + 2\hat{j}$ and $\vec{B} = 2\hat{i} - 3\hat{j}$. $\vec{A} \times \vec{B}$ is:

- A) $-29\hat{k}$ B) $-34\hat{k}$ C) $-19\hat{k}$ D) $-24\hat{k}$

Q.05) In 2.0 s, a particle moving with constant acceleration along the x axis goes from $x = 10 \text{ m}$ to $x = 50 \text{ m}$. The velocity at the end of this time interval is 10 m/s . The acceleration (in m/s^2) of the particle is equal to:

- (A) -15 (B) -10 (C) -25 (D) -20

Q.06 A girl's hair grows with an average speed of $(3.5 \times 10^{-9} \text{ m/s})$. How long does it take her hair to grow (0.32 m) (in years)? (Note: 1 Year = $3.156 \times 10^7 \text{ s}$).

- (A) 2.90 (B) 3.44 (C) 3.26 (D) 3.08

Q.07 A stone is dropped into a deep well and is heard to hit the water 2.49 seconds after being dropped. The depth of the well (in m) is:

- (A) 32.87 (B) 30.38 (C) 38.14 (D) 35.46

Q.08 Suppose the position vector for a particle is given as a function of time by: $\vec{r}(t) = [(2t^3 - 5t)\hat{i} + (6 - 7t^4)\hat{j}] \text{ m}$. Find the acceleration of the particle at $t=1\text{s}$ (in m/s^2).

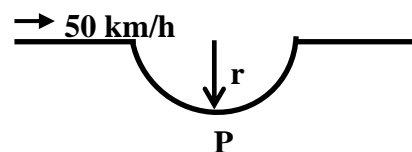
- (A) $12\hat{i} - 84\hat{j}$ (B) $-3\hat{i} - \hat{j}$ (C) $\hat{i} - 28\hat{j}$ (D) $12\hat{i} - 168\hat{j}$

Q.09 A small ball rolls horizontally off the edge of a tabletop that is 1.20 m high. It strikes the floor at a point 1.52 m horizontally from the table edge. How long is the ball in the air (in s)?

- (A) 0.61 (B) 0.57 (C) 0.53 (D) 0.49

Q.10 A car with a mass of 500 kg while traveling at a speed of 50 Km/h passes through a curved portion of road in the form of an arc of a circle of radius 10 m. The centripetal acceleration in (m/s^2) of the car at the lowest point P shown in the figure is?

- (A) 32.2 (B) 24.1
(C) 19.3 (D) 48.2

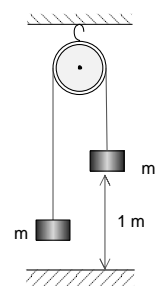


Q.11 Action and reaction forces are:

- (A) always act on different objects. (B) always act on the same object.
(C) may be at right angles. (D) sometimes act on the same object.

Q.12 In the figure shown, the block of mass ($m_0=100 \text{ kg}$) takes 2 s to reach the floor after being released from rest. What is the mass (m) of the block on the left (in kg)?

- (A) 99.3 (B) 108.3
(C) 117.4 (D) 90.3



Q.13 A refrigerator weighs (1700 N). It remains at rest even if a horizontal force of ($F=280 \text{ N}$) is applied to it. What is the force of friction between the refrigerator and the floor (in units of N)? (Assume that: $\mu_k = 0.4$ and $\mu_s = 0.5$)

- (A) 280 (B) Zero (C) 680 (D) 850

Q.14 An object of mass (2 kg) moves down on a rough 20° inclined plane with a constant velocity. Find the coefficient of kinetic friction between the surfaces?

- (A) 0.34 (B) 0.36 (C) 0.97 (D) 1.0

Q.15 In the figure shown, if the weight of the suspended object is 50 N. The tension in the cord (1) (in N) is?

- (A) 60.62 (B) 51.96
(C) 69.28 (D) 43.30

