Name: **Student number:**

Check your section with [X] below:

*Check your correct answer with **X** in the table below:*

General Physics for Health Sciences (0211109)
Section (Lecture time)   [X] Lecturer

50 (08:15 – 09:45) Sun, & Tues. [   ] Dr. Zuheir El-bayyari
2   (11:15 – 12:45) Sun, & Tues. [   ] Dr. Zuheir El-bayyari
3   (08:15 – 09:45) Mon. & Wedn. [   ] Dr. Zuheir El-bayyari
4   (11:15 – 12:45) Mon. & Wedn. [   ] Dr. Zuheir El-bayyari
5   (14:15 – 15:45) Sun, & Tues. [   ] Mr. Mustafa Al-zyout
6   (12:45 – 14:15) Mon. & Wedn. [   ] Mr. Mustafa Al-zyout

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 m/s²*
- Each of the following problems has 2.0 point.
- You have a total of 15 questions.
- The use of a non-programmable calculator is allowed only.

Good Luck
Dr. Zuheir El-bayyari (Module Coordinator) & (Internal examiner)

Q. 01) The resultant of two vectors is smallest when the angle between them is:

(A) $45°$ (B) $0°$ (C) $180°$ (D) $90°$

Q. 02) If vector $\vec{B}$ is added to vector $\vec{A}$ the result is $6\hat{i} + 2\hat{j}$, if $\vec{B}$ is subtracted from $\vec{A}$ the result is $-4\hat{i} + 7\hat{j}$. What is the magnitude of $\vec{A}$?

(A) 4.6   (B) 5.1   (C) 5.6   (D) 6.1

Q. 03) Given $\vec{A} = -3\hat{j}$ and $\vec{B} = 3\hat{i} + 4\hat{j}$. What is the magnitude of $\vec{A} - 2\vec{B}$?

(A) 10.8   (B) 12.5   (C) 9.2   (D) 14.3

Q. 04) Two vectors $\vec{A}$ and $\vec{B}$ have magnitudes of (10) and (4), respectively, and the scalar product of these two vectors is (-10). What is the angle between these two vectors:

(A) $120.0°$ (B) $112.0°$ (C) $104.5°$ (D) $128.7°$

Q. 05) Given the two vectors $\vec{A} = 3\hat{i} + 4\hat{j} + 5\hat{k}$ and $\vec{B} = 2\hat{i} + \hat{j} + 3\hat{k}$. What is the angle between $\vec{A}$ and $\vec{B}$.

(A) $27.9°$ (B) $22.2°$ (C) $25.4°$ (D) $19.1°$

Q. 06) The velocity of a particle moving along the x-axis is given by:
$v(t) = -3 + 8t \ (m/s)$, where (t) is in seconds. What is the average acceleration of the particle during the time interval (t = 1 s) to (t = 2 s) (in m/s^2)?
(A) 12   (B) 10   (C) 8   (D) 14

Q. 07) The position of the a particle moving along the x-axis is given by:
$x(t) = 6t^2 - t^3$, where (x) is in meters and (t) is in seconds. What is the position of the particle (in m) when its velocity is Zero?
(A) 32   (B) 108   (C) 256   (D) 4

Q. 08) An object is moving with a constant velocity of (5 m/s) for (10 s). Then it is stopped (5 s) later due to a retarding force. Find the total displacement of the object (in m).
(A) 77.5   (B) 67.5   (C) 72.5   (D) 62.5

Q. 09) An object moving with a constant acceleration has velocity of (12 cm/s) in the positive x-direction when its x-coordinate is (3 cm), if its x-coordinate (2 s) later is (- 5 cm). What is its acceleration (in cm/s^2)?
(A) - 16.0   (B) - 16.5   (C) - 17.0   (D) - 17.5

Q. 10) A stone is thrown from the top of a building with an initial velocity of (20 m/s) downward. The top of the building is (60 m) above the ground. The time it will take to reach the ground (in s) is:
(A) 2.25   (B) 2.01   (C) 2.49   (D) 2.71

Q. 11) Two boxes (m_1 = 3 kg) and (m_2 = 2 kg) are in contact with each other on a frictionless surface as shown in the figure. What is the acceleration of the box (m_2) (in m/s^2)?
(A) 10   (B) 15   (C) 6   (D) -15
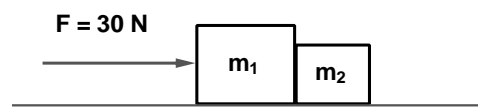
Q. 12) Action and reaction forces are:
(A) Always act on different objects.   (B) Always act on the same object.
(C) May be at right angles.   (D) Sometimes act on the same object.

Q. 13) A block of mass (m = 2 kg) slides down a frictionless plane inclined at an angle $\theta = 37°$ as shown in the figure. The normal reaction force exerted by the plane on the block (in N) is:
(A) 7.8   (B) 11.8   (C) 15.6   (D) 5.9
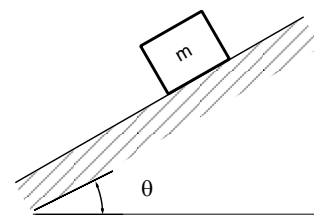
Q. 14) A stone of a mass (m) is attached to a strong string and whirled in a vertical circle of radius (r = 0.8 m). At the top of the path the tension in the string is three times the stone's weight. The stone's speed (in m/s) at this point is:
(A) -4.8   (B) 5.6   (C) 4.8   (D) 3.9

Q. 15) A (2 kg) object is moving with a constant speed of (30 m/s) in a circular path of radius (150 m). What is its acceleration (in m/s^2)?
(A) 4.2   (B) 2.7   (C) 1.5   (D) 6