Kingdom of Saudi Arabia	ببهم الله الرحمن الرحيم	مملكة العربية السعودية	الد			
Ministry of higher Education	O	وزارة التعليم العالي				
Al-Imam Mohammed Bin Saud Islamic University		جامعة الإمام محمد بن سعود الإسلامية				
College: Science	ريلهام	Course Name:	General Physics			
	جانعتا الطاعة معطلاتيك	Course Code:	101			
Department: Physics		Semester/Year:	mid (2)			
		Duration:	45 second			

الشعبة	الرقم الجامعي	اسم الطالدي

question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
answer															

## A- Choose the correct answer and write the litter on it in the table : 15 points

- 1- Mass different from weight in that:
  - A. all objects have weight but some lack mass
  - B. weight is a force and mass is not
  - C. the mass of an object is always more than its weight
  - D. mass can be expressed only in the metric system
- 2- A steel ball is suspended by a light rope from the ceiling. The tension in the rope is 200 N, the mass of ball is :

A.+ 20.4 kg	
B. + 200 kg	
C 20.4 kg	
D 200 kg	

- 3- A block of mass m is pulled at constant velocity along a **rough horizontal** floor by an applied force T as shown. The magnitude of the (F<sub>g</sub>) gravitational force is :
  - A.  $n + T \cos\theta$ B.  $n + T \sin\theta$ C.  $n - T \cos\theta$ D.  $n - T \sin\theta$



- 4- The unit of power (Watt) is equal to :
  - A. kg. m<sup>2</sup>/s<sup>3</sup> B. kg.m/s<sup>2</sup> C. N.m/s D. J.s
- 5- When a certain force is applied to the object of mass 15 kg its acceleration is 5.0  $m/s^2$ . When the same force is applied to another object of mass 5 kg its acceleration is:
  - A. 2  $m/s^2$ B. 3  $m/s^2$ C. 5  $m/s^2$ D. 15  $m/s^2$

- 6- How much power is required to CClift a 2.0 kg mass at a speed of 2.0 m/s:
  - A. 2.0 W B. 9.8 W C. 4.0 W D. 39 W
- 7- Work is done when:
  - A. the displacement is zero.
  - B. the force and displacement are parallel.
  - C. the force is zero .
  - D. the force and displacement are perpendicular.
- 8- A ball 2 kg thrown upward from the vertical distance 5m, the change in the kinetic energy of the system is (-16 J ), what is the initial velocity for the ball?
  - A. 2 m/s B. 4 m/s C. 0 m/s D. 16 m/s
- 9- The net work done by the applied force (3N) on an object is 32 J and this object moved from rest where the surface is frictionless, the change in the kinetic energy is :
  - A. 10.70 J B. 96.00 J C. 32.00 J D. 3.00 J
- 10- A 5 kg cart is moving horizontally at 6m/s. In order to change its speed to 10m/s, the change in kinetic energy done on the cart must be:
  - A. 40.0 J B. 90.0 J C. 160 J D. 400 J

- 11- Work of 6 J is done by a force (F = 2i 6j) N acts on a particle that undergoes a displacement d = 3i m. Find the angle between F and d?
  - A. 71.5° B. 74.0° C. 66.8 ° D. 59.9 °
- 12- Force of 20 N acts on a particle that undergoes a displacement 6 m as shown in figure . The net work done is :



- 13-What happens to the kinetic energy of a falling object as it accelerates toward Earth?
  - A. Kinetic energy decreases.
  - B. No change in kinetic energy.
  - C. Kinetic energy increases.
  - D. All of the above are not correct.

14-For every action there is an equal and opposite reaction. This is a statement of :

- A. Newton's First Law of Motion.
- B. Newton's Second Law of Motion.
- C. Newton's Third Law of Motion.
- D. All of the above are not correct.
- 15-Block of 10kg is on a rough horizontal tableIf the friction coefficient is (1.00),Find the friction force ?
  - A. 98.0 N
  - B. 9.80 N
  - C. 980 N
  - D. zero N



## **<u>B-</u>** Answer the following equation : 5 points

Consider two Blocks, Block A = 2 Kg, and Block B = 3 Kg, connected with a weightless string through a weightless and frictionless pulley as shown in the figure. Block A is on a table which is horizontal.

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Α

A- Show the free body diagram?

