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اختبار الدوري الثاني للفيزياء 110 -- زمن الأختبار 90 دقيقة

1431/6/4هـ

الشعبة:	الرقم الجامعي:	أسم الطالب:

Q1-1. If the position of an object changes from $\vec{r}_1 = -2\hat{i} + 3\hat{j}$ to $\vec{r}_2 = \hat{i} - 2\hat{j}$, the displacement is:

A) $\Delta\vec{r} = 3\hat{i} + 5\hat{j}$ B) $\Delta\vec{r} = -\hat{\imath} - 5\hat{\jmath}$ C) $\Delta\vec{r} = -3\hat{i} - 5\hat{j}$ D) $\Delta\vec{r} = 3\hat{i} - 5\hat{j}$

Q2-A projectile is launched at an angle of 30^0 to the horizontal with a speed of 100 *m/s.* The maximum height of the projectile is :

A) 100m B) 127.55 m C) 250 m D) 44.0 m

Q3- Referring to Q2, the range of the projectile is:

A) 88.37 m B) 383 m C)8.8 m D) 883.69 m

Q4- Referring to Q2, its time of flight is:

A) 10.2 s B) 25.2 s C) 6.04 s D) 5.02 s

Q5. A man throws a stone horizontally off a cliff that is 40 m above the sea level. If the velocity of the stone is 30 m/s, the time it takes to hit the sea level is:

A) 3.49 s B) 4 s C) 2.85 s D) 6 s

Q6- An object was fired with an angle 30^0 with the horizontal with a speed of 80 m/s . The vertical component of the velocity is:

A) 40 m/s B) 4.0 m/s C) 15 m/s D) 35 m/s

Q7- An object is in equilibrium, the acceleration of the object is:

A) 9.8 m/s^2 B) -9.8 m/s^2 C) Zero D) Constant

Q8- If a body sliding down on an incline smooth plane. The force causing the body to slide is:

A) mg sin θ B) mg cos θ C) mg tan θ D) mg

Q9- An object weighing 600 N is pulled up a frictionless inclined plan of an angle of 30^0at a constant velocity. The force causing the motion is:

A) 200 N B) 245 N C) 520 N D) 300 N

Q10- A body moves in a circular orbit with constant velocity. Its acceleration is:

A) zero B) in the direction of the tangent

C) toward the center D) outward, of the center

Q11- A car travels in a circular track of 200 m in circumference at a constant velocity of 18 m/s . The radial acceleration of the car is:

A) 8.37 m/s^2 B) 12.8 m/s^2 C) 7.31 m/s^2 D) 10.2 m/s^2

Q.12 In figure(1) a block of mass m =1 kg hangs from the ceiling by means of two cords. The angle between each cord and the ceiling is 60^0. The tension in the right cord is:

A) 56.6 N B) 28.65 N C)20.63 N D)5.66N

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A) 3.26 B) 1.25 C) 1.09 D) 1.9

Q14- A force of 50 N pulls a 5 kg crate up an inclined rough surface with angle30°. If the coefficient of friction $\mu_k = 0.5$, the acceleration of the crate is:

A) 0.6 m/s^2 B) 1.2 m/s^2 C) 0.86 m/s^2 D) 1.39 m/s^2

Q15- An object weighing 24 N is placed on a 30^0 slope as shown in figure (3). The normal force is:

A) 20.78 N B) 17.02N C) 23.02 N D) 24.78 N

Q16- Referring to Q15, the force preventing the object from moving is:

A) 8.38 N B) 12 N C) 10 N D) Zero

Q17- Weight of 50 N is supported by a rod and a cable as shown in figure (4). The tension (T_1) is:

A) 45.77 N B) 138.59 N C) 77.78 N D) 87.77 N

Q18- The coefficient of static friction μ_s of inclined plane depends on:

A) angle B) mass C)velocity D) acceleration

Q19- A projectile is fired with a velocity of 80 m/s at an angle of θ to the horizontal. If the vertical component of the initial velocity was 60 m/s, the angle θ is:

A) 48.6^0 B) 54.5^0 C) 32.23^0 D) 20^0

Q20- A bullet is fired horizontally from the roof of a building with a velocity of 850 m/s. Its height in 3.0 s is:

A) 29.4 m B) - 44.1 m C) -100 m D) 19.60 m

Q21- Referring to Q21, If the building is 100 m height, the time for the bullet to reach the ground is:

A) 3.13 s B) 81.32 s C) 4.52 s D) 20.41 s

Q22- A ball kicked with a velocity of 15 m/s and with an angle of θ from the horizontal. The maximum range is:

A) 25.85 m B) 40.82m C) 50.20 m D) 22.96 m

Q23- A man weighing 800 N is standing in an elevator moving with a constant velocity. The force exerted by the man on the floor of the elevator is:

A) less than 80 N B) 800 N C)between 80 and 800 N D) more than 800 N

Q24- A 25 kg box is pushed across a frictionless horizontal floor with a force of 30 N, directed 20° below the horizontal. The acceleration of the box is:

A) 1.13 m/s^2 B)1 .5 m/s^2 C) 2.82 m/s^2 D) 0.75 m/s^2

Q25- Referring to Q24, the normal force acting on the ground by the box is:

A) 108.26 N B) 25 N C) 255.26 N D) 125 N

Q26- A car moves in a circular road of radius 120 m. If μ_s= 0.5, then the maximum speed of the car without sliding is:

A)24.25 m/s B) 22.1m/s C)19.79 m/s D) 17.15 m/s

Q27- A car of mass 1050 kg is traveling at 72 km/h on a curved road with radius of 60 m. The force of friction needed to prevent the car from sliding is:

A) 6800 N B) 5124.1 N C) 7000 N D) 6600 N

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Q28- A block of mass 80 kg is moving along a rough horizontal surface with a coefficient of kinetic friction equal 0.2. If its initial speed is14 m/s, the block will stop after covering a distance:

A) 57.39 m B) 50.0 m C) 106.3 m D) 33.33 m

Q29- Two masses m_1=2 kg, m_2 = 4 kg situated on a frictionless horizontal surface are connected by a string. A force F = 12 N is exerted on m_2 as shown in fig. (5). The acceleration of the system is

A) 4 m/s^2 **B)** 3 m/s^2 C) 2 m/s^2 D) 1 m/s^2

Q 30- A 25 kg block moves with an initial velocity of 25 m/s on a frictionless surface. The block came to rest by the effect of an external force F=-235i N. The distance the block moved is:

A) 76.1 m B) 266.66 m C) 33.24 m D) 14.6 m

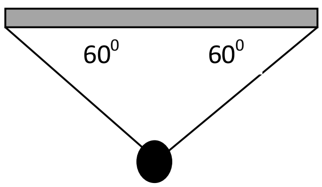

Fig (1)

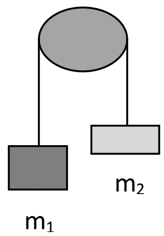

Fig. 2

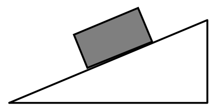

Fig. (3)

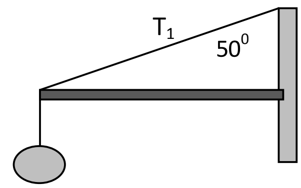

Fig. (4)

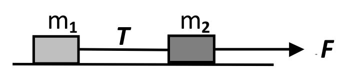

Fig. 5

Referring	العودة الى	Tension	الشد	Ceiling	سقف
Skier	متزلج على الثلج	Launched	اطلقت	Hang	معلق
Vertically	عامودي	Elevator	مصعد	Prevent	يمنع
Circumference	محيط الدائرة	Circular	دائري	Tangent	مماس
Crate	صندوق	Rough	خشن	Cliff	جرف بحري
Radius	نصف قطر	Coefficient	معامل	Friction	الاحتكاك
Sliding	ينزلق	Static	السكوني	causing	المسبب للحركة
Radial	دائري	Kinetic	الحركي	equilibrium	متزن
Support	يدعم	Rod	قضيب	Situated	موضوع على