Question 1

Figure 5.19
Block A of mass 7 kg and block X are attached to a rope which passes over a pulley. A 60 N force is applied horizontally to block A, keeping it in contact with a rough vertical face. The coefficients of static and kinetic friction are and   The pulley is light and frictionless. In Figure 5.19, the mass of block X is set so that block A is on the verge of slipping upward. The mass of block X is closest to:
• 9.0 kg
• 8.0 kg
• 9.4 kg
• 9.9 kg
• 8.5 kg
Answer: https://biology-forums.com/index.php?topic=1896653

Question 2

Figure 3.3
A wind farm generator uses a two-bladed propeller mounted on a pylon at a height of 20 m. The length of each propeller blade is 12 m. A tip of the propeller breaks off when the propeller is vertical. The fragment flies off horizontally, falls, and strikes the ground at P. Just before the fragment broke off, the propeller was turning uniformly, taking 1.2 s for each rotation.
In Figure 3.3, the angle with respect to the vertical at which the fragment strikes the ground is closest to:
• 63°
• 58°
• 68°
• 78°
• 73°
Answer: https://biology-forums.com/index.php?topic=1896600

Question 3

In Figure 17.4 the charge in the middle is For what charge q1 will charge q2 be in static equilibrium?Figure 17.4
• 30 nC
• 60 nC
• 15 nC
• 7.5 nC
Answer: https://biology-forums.com/index.php?topic=1896837

Question 4

Figure 21.27
In Figure 21.27, a large cylindrical loop of 269 turns and radius 67.0 cm carries a current of A small square loop of 31 turns and 1.00 cm on a side is placed at the center of the large loop. If the current in the large loop drops to 0 in find the induced emf in the small loop. (Assume that the magnetic field in the region of the square loop is uniform.)
Answer: https://biology-forums.com/index.php?topic=1896977

Question 5

Figure 3.1
A projectile is fired from the origin (at y = 0 m) as shown in Figure 3.1. The initial velocity components are and The projectile reaches maximum height at point P, then it falls and strikes the ground at point Q. In Figure 3.1, the y-coordinate of point P is closest to:
• 45,080 m
• 45,550 m
• 940 m
• 470 m
• 90,160 m
Answer: https://biology-forums.com/index.php?topic=1896583

Question 6

Figure 6.6 shows two wires tied to a 8.8 kg sphere which revolves in a horizontal circle at constant speed. At this particular speed the tension is the same in both wires. What is the tension?
• 86 N
• 120 N
• 63 N
• 59 N
Answer: https://biology-forums.com/index.php?topic=1896688

Question 7

An ideal toroidal solenoid containing 825 equally spaced coils is shown in Figure 20.16. (a) How large must the current I be so that the magnetic field within the coils at a distance of 17.0 cm from the center is 0.0250 T? (b) What is the magnetic field strength in the region outside the coils?Figure 20.16

Answer: https://biology-forums.com/index.php?topic=1896960

Question 8

A projectile is fired at time t = 0.0s, from point 0 at the edge of a cliff, with initial velocity components of and The projectile rises, then falls into the sea at point P. The time of flight of the projectile is Figure 3.2c
In Figure 3.2c, the height H of the cliff is closest to:
• 32,130 m
• 36,000 m
• 47,490 m
• 39,810 m
• 43,650 m
Answer: https://biology-forums.com/index.php?topic=1896589

Question 9

Figure 22.4
An ac source whose rms voltage is 80 V is in series with a 100 ohm resistor and a capacitor whose reactance is 200 ohms at the frequency of the source. In Figure 22.4, the rms voltage across the capacitor is closest to:
• 66 V
• 70 V
• 72 V
• 68 V
• 74 V
Answer: https://biology-forums.com/index.php?topic=1896998

Question 10

Figure 4.6
In Figure 4.6, the three forces shown on the diagram act on an object at the origin. Find the magnitude and direction of the resultant of these forces. Express the direction by giving the angle that the resultant force makes with the positive x-axis, and take counterclockwise angles to be positive.
Answer: https://biology-forums.com/index.php?topic=1896617

Question 11

Figure 16.3b

A heat engine takes 2.0 moles of an ideal gas through the reversible cycle abca, on the pV diagram, as shown. The path bc is an isothermal process. The temperature at c is and the volumes at a and c are and respectively. The molar heat capacity at constant volume, of the gas, is In Figure 16.3b, for the path bc, the work done by the gas, in kJ, is closest to:
• 17
• 8.6
• -17
• -8.6
• zero
Answer: https://biology-forums.com/index.php?topic=1896813

Question 12

Figure 22.1b
The 60 Hz ac source of a series circuit has a voltage amplitude of 120 V. The capacitive and inductive reactances are and respectively. The resistance is In Figure 22.1b, the inductance, in mH, is closest to:
• 2,600
• 3,500
• 2,100
• 560
• 1,300
Answer: https://biology-forums.com/index.php?topic=1896987

Question 13

The earth's radius is 6380 km and its mass is 5.97 × 1024 kg. The gravitational constant is   (a) If Hubble's constant has the experimental value (although this can change due to future measurements), calculate the critical density of the universe needed to stop the expansion of the universe. (b) If the earth had this density, what would be its radius? Express your answer in meters and as a multiple of its present radius.
Answer: https://biology-forums.com/index.php?topic=1897055

Question 14

A 15 kg block is on a ramp which is inclined at 20° above the horizontal. It is connected by a string to a 19 kg mass which hangs over the top edge of the ramp. Assuming that frictional forces may be neglected, what is the magnitude of the acceleration of the 19 kg block? (See Figure 5.13.)Figure 5.13
• 3.8 m/s2
• 4.5 m/s2
• 4.2 m/s2
• 4.0 m/s2
Answer: https://biology-forums.com/index.php?topic=1896637

Question 15

Figure 5.10 shows a 4,800 kg cable car descending a high hill. A counterweight of mass 4,600 kg on the other side of the hill aids the breaks in controlling the cable car's speed. The rolling friction of both the cable car and the counterweight are negligible. How much braking force does the cable car need to descend at constant speed?Figure 5.10
• 3,500 N
• 8,100 N
• 5,800 N
• 980 N
Answer: https://biology-forums.com/index.php?topic=1896634

Question 16

The components of vector are given as follows:
 Ax = +6.1
 Ay = -8.6
The angle measured counterclockwise from the x-axis to vector , in degrees, is closest to:
• 215
• 55
• 305
• 125
• 145
Answer: https://biology-forums.com/index.php?topic=1896538

Question 17

Figure 5.15
A system comprising blocks, a light frictionless pulley, a frictionless incline, and connecting ropes is shown. The 9 kg block accelerates downward when the system is released from rest.
In Figure 5.15, the acceleration of the system is closest to:
• 1.7 m/s2
• 1.9 m/s2
• 2.1 m/s2
• 2.3 m/s2
• 1.5 m/s2
Answer: https://biology-forums.com/index.php?topic=1896642