Dashboard / My courses / PH100 / General / Mid-semester Online 1 (CE 15%)

Started on	Thursday, 24 December 2020, 5:59 PM
State	Finished
Completed on	Thursday, 24 December 2020, 6:27 PM
Time taken	27 mins 51 secs
Marks	6.75/8.00
Grade	**8.44** out of 10.00 (**84**%)

Question **1**

Correct

Mark 1.00 out of 1.00

A useful and easy to remember approximate value for the number of seconds in a year is \pi times 10^7. Determine the percent error in this approximate value. (There are 365.24 days in one year.)

Answer: 0.45%   ✔

The correct answer is: 0.45%

Question **2**

Correct

Mark 1.00 out of 1.00

The position of the front bumper of a test car under microprocessor control is given by: x(t)=(2.17 m)+(4.80 m/s^2)t^2-(0.100 m/s^6)t^6. Find its acceleration at t=2 seconds.

Answer: –38.4   ✔

The correct answer is: –38.4

Question **3**

Incorrect

Mark 0.00 out of 1.00

Vectors A and B have scalar product –7.00, and their vector product has magnitude +9.00. What is the angle between these vectors?

Answer: tan^-1(-9/7)   ✘

The correct answer is: 127

Question **4**

Correct

Mark 1.00 out of 1.00

A particle moves outward along a spiral. Its trajectory is given by $r = A\ \theta$, where A is a constant. $A = (1/\ \backslash pi)$ m/rad. θ increases in time according to $\theta = k\ t^2\ /2$, where k is a constant. At what angles do the radial acceleration is zero?

○ 1/(\square root 3)

◉ 1/(\square root 2)   ✔

○ \pi/4

○ \pi/2

Your answer is correct.

The correct answer is:
1/(\square root 2)

Question **5**

Correct

Mark 1.00 out of 1.00

You are lost at night in a large, open field. Your GPS tells you that you are 122.0 meters from your truck, in a direction 58.0 degree east of south. You walk 72.0 meters due west along a ditch. How much farther, and in what direction, must you walk to reach your truck?

○ a. 61.1 degree North of East

○ b. 65.1 degree South of West

○ c. 65.1 degree North of West

○ d. 64.1 degree South of East

○ e. 60.1 degree South of West

○ f. 61.1 degree North of East

◉ g. 64.1 degree North of West   ✔

○ h. 65.1 degree North of East

Your answer is correct.

The correct answer is:
64.1 degree North of West

Question **6**

Correct

Mark 1.00 out of 1.00

A particle moves in a plane with constant radial velocity *4 m/s*. The angular velocity is constant and has magnitude 2 *rad/s*. When the particle is *3 m* from the origin, find the magnitude of the acceleration.

Answer: | 20 | ✔

The correct answer is: 20

Question **7**

Partially correct

Mark 0.75 out of 1.00

Match with appropriate one.

Coriolis acceleration	towards negative tangential direction	✘
Linear tangential acceleration points	towards positive tangential direction	✔
Centripetal acceleration	towards negative radial direction	✔
Linear radial acceleration points	towards positive radial direction	✔

Your answer is partially correct.

You have correctly selected 3.
The correct answer is:
Coriolis acceleration → towards positive tangential direction,

Linear tangential acceleration points → towards positive tangential direction,

Centripetal acceleration → towards negative radial direction,

Linear radial acceleration points → towards positive radial direction

Question **8**

Correct

Mark 1.00 out of 1.00

Two blocks are in contact on a horizontal table. A horizontal force is applied to one of the blocks, as shown in the drawing. If m_1 = 4 kg, m_2 = 3 kg, and F = 7 N, find the force of contact between the two blocks.
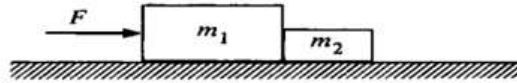
Answer: 3   ✔

The correct answer is: 3

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