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**General Physics-I (PHYS1000AA, AB, AC)**

**Quiz - 2**

Date: 2022-11-29 Fall Semester-111

Time: 11:10 am – 12:10 pm Maximum marks: 100

Student id: Name:

1. **The amplitude of a system moving in simple harmonic motion is doubled. Determine the change in (a) the total energy, (b) the maximum speed, (c) the maximum acceleration, and (d) the period.**

**Solution:**

(a) so if  

 Therefore 

 (b) , so if *A* is doubled, 

 (c) , so if *A* is doubled, 

 (d) is independent of *A*, so 

2. **A seismographic station receives S and P waves from an earthquake, separated in time by 17.3 s. Assume the waves have traveled over the same path at speeds of 4.50 km/s and 7.80 km/s. Find the distance from the seismograph to the focus of the quake.**

**Solution:**

The distance the waves have travelled is *d* = (7.80 km/s)*t* =
(4.50 km/s)(*t* + 17.3 s), where *t* is the travel time for the faster wave.

 Then, 

 or 

 and the distance is 