**SUPERPOSITION OF SHM**

* **Answer all the questions**
1. A particle has two simple harmonic motions simultaneously along the same line. These are

x = 10cos2t cm and

x = 6cos(2t + )cm

Find the resultant motions.

1. A particle has simultaneously two simple harmonic motions along X axis. The frequencies and amplitudes are 12Hz and 20 cm and 10Hz and 20 cm respectively. There is no initial phase difference. What is the frequency of resultant motion and of the amplitude?
2. A particle has simultaneously two simple harmonic motions along X and Y axes. Both have amplitudes 10 cm, frequency 10 Hz, but phase difference . Find the nature of the motion.
3. Two tuning forks A and B whose frequencies are approximately in the ratio of 1:2 are sounded together to obtain Lissajous figures. It is found that the cycle undergoes a change in 12 second. On slightly loading the higher fork the period of the cycle is raised to 15 second . If the frequency of the lower is 100, calculate that of the higher before and after loading.