

## QUES 05:-

Two sitar strings A and B playing the note 'Dha' are slightly out of tune and produce beats of frequency 5 Hz. The tension of string B is slightly increased and the beat frequency is found to decrease to 3 Hz. What is the original frequency of B, if the frequency of A is 427 Hz?

**Sol.** Here, the frequency of A = 427 Hz

As the number of beats/sec (n) = 5 Hz

∴ Possible frequencies of B are  $(427 \pm 5)$  Hz = 432 Hz or 422 Hz.

When the tension of B is increased, its frequency increases (as the frequency is directly proportional to the square root of tension). As a result the number of beats/sec decreases from 5 Hz to 3 Hz.

Therefore, n is negative.

Hence, original frequency of B =  $427 - 5 = 422$  Hz.