**Answer on Question #61685-Physics-Other**

A train moving with speed 72 km h−1 emits a whistle of frequency 600 Hz. A person is standing stationary on the platform. Calculate the frequency heard by the person if the train (i) approaches and (ii) recedes away from the listener.

**Solution**

The speed of train relative to platform:

$$V_t = 72000\frac{m}{h}\frac{1h}{3600s} = 20\frac{m}{s}.$$

$V_s$ is the speed of the sound.

$V_p = 0$ is the speed of platform relative itself.

i. The frequency heard by the person if the train approaches to the listener is

$$f_1 = \frac{V_s + V_p}{V_s - V_t} f_t = \frac{343 + 0}{343 - 20}\ 600 = 637.2\ Hz.$$

ii. The frequency heard by the person if the train recedes away from the listener is

$$f_2 = \frac{V_s - V_p}{V_s + V_t} f_t = \frac{343 - 0}{343 + 20}\ 600 = 566.9\ Hz.$$