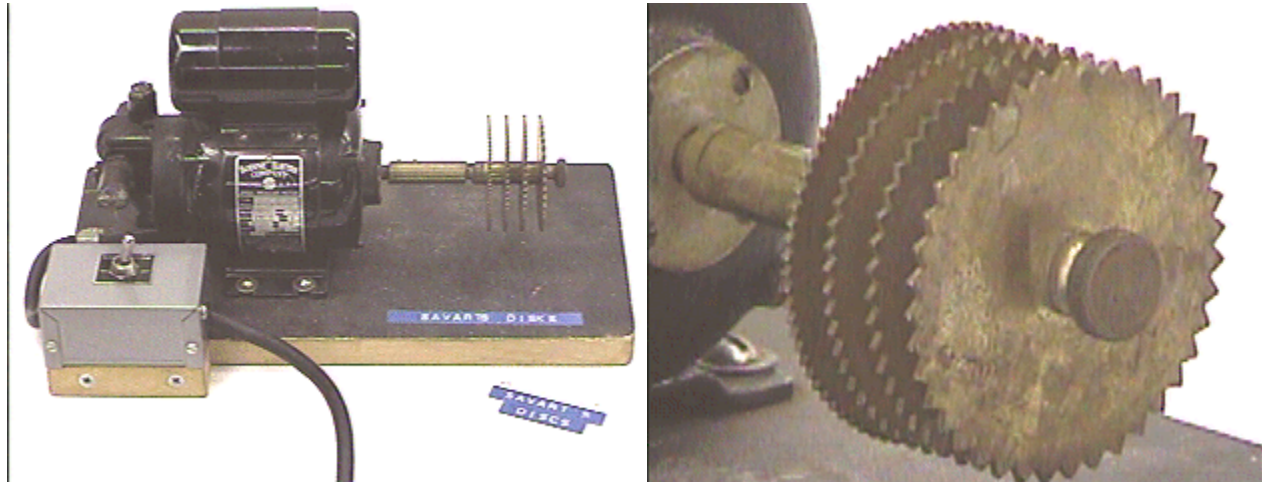


Question #236

Four toothed wheels are positioned along a shaft mounted on a motor that rotates about ten times per second when the motor is turned on. A close-up of the toothed wheels is shown at the right. The wheels, from right to left respectively, have 40, 50, 60, and 80 teeth around their circumferences.



Now suppose that the motor is turned on, spinning the toothed wheels, and a piece of heavy paper is held against the wheels so as to be struck by each tooth of each wheel as the wheels spin. The question this week involves the type of sound produced by this device. Click on the photograph above to hear the sound of the paper being held against one of the spinning toothed wheels.

Here are four possible sounds that might be created by this system:

- (a) white noise, equally loud at all audio frequencies.
- (b) pink noise, louder at low audio frequencies.
- (c) a very soft periodic sound with lots of noise.
- (d) a musical chord with some noise.
- (e) a very clear musical chord.

Click here for [Answer #236](#) after January 9, 2006.

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For questions and comments regarding the *Question of the Week* contact [Dr. Richard E. Berg](#) by e-mail or using phone number or regular mail address

given on the [Lecture-Demonstration Home Page](#).