

LEVEL I VIBRATION CERTIFICATION SUGGESTED TOPICS

1. Basic vibration terminology. Amplitude, Frequency, Spectra, Waveforms
2. “Averaging Modes” how the signals are processed
3. Sub-Synchronous defects (Spectral & Waveform Characteristics)
4. Synchronous defects (Spectral & Waveform Characteristics)
5. Non-Synchronous defects (Spectral & Waveform Characteristics)
6. Digital Signal Processing, such as, Integration & Differentiation, & “Overall” calculations
7. Electrical Problems (How do they appear in the Spectrum ?)
8. Basics of Time Waveform Analysis
9. Mathematical Conversion of Amplitude Units – RMS to Peak ---- Peak to Peak to Peak Measurements
10. Resonance Testing and Monitoring Peak/Phase ---- Coast Down

SAMPLE QUESTIONS

1. One characteristic of an Inner Race Bearing Defect is sidebands of turning speed around the Bearing defect frequency harmonics. TRUE or FALSE
2. Does viewing a spectrum in Displacement provide more or less detail of high frequency events? _____
3. When performing a coast down looking for Resonant Frequencies , what characteristics are you looking to find in the (Bode) Plots ? _____
4. What is Vibration. _____
5. Multiples of turning speed in the spectrum is an indication of what type of problem ? _____
6. Rolling Element Bearing defects show up in the Spectrum as Synchronous Energy ? TRUE or FALSE
7. Gear problems show up in the Spectrum as Non Synchronous Energy ? TRUE or FALSE
8. What effect would slowing down a Fan that has an Unbalanced Condition have to the Amplitude of Vibration ?
9. Describe the Phase Characteristics of Unbalance ? _____
10. Why do I need to know the speeds for each shaft in a Gear-Box ? _____

Prerequisites prior to taking Examination:

Recommended Courses -- Fundamentals of Vibration, Basic Vibration, and Intermediate Vibration
Study the material in Dr. Art Crawford’s book (The Simplified Handbook of Vibration Analysis Volume 1)
(6 months to one years experience collecting and Analyzing data)
