IT 702 Diagnostic Maintenance & Monitoring

Major Test

Time: 2 Hours Max Marks: 35
Attempt All Questions

1. Answer the following very briefly. (6)
   i) Write two performance monitoring parameters for I.C. engines.
   ii) Write full names of i) MEMS ii) TEDS transducers.
   iii) Write two applications of Thermography in industry.
   iv) What is the particle size range in which wear debris can be detected by i) Magnetic plugs ii) Spectrographic oil analysis?
   v) What is the main difference between Condenser and Electret microphones?
   vi) Write two indicators of degradation of transformer insulation.

2. How is Diagnostic Maintenance different from other maintenance strategies? (3)

3.
   i) Explain "Hanning Weighting". (3)
   ii) At what frequencies do you expect high vibration levels due to i) Misalignment ii) Oil whirl in journal bearings iii) Eccentricity in induction motor iv) Defect in ball of rolling element bearing? (4)

4.
   i) Two closely kept machines individually produce noise levels of 87 and 92 dB at 2 meter distance in open space. What will be their combined level at 4 meter distance when both are operating? (3)
   ii) Which frequencies will appear in the vibration spectrum of an induction motor due to broken rotor bar when the rotational speed is 1440 rpm, slip is 10% and supply frequency is 49 Hz? (3)

5.
   i) Write a short note on "Particle Counter". (3)
   ii) Explain with figures the difference between resonant and broadband type transducers used in acoustic emission monitoring. (3)

6.
   i) How can we measure the change in wall thickness of a pipe using Ultrasonic testing? (4)
   ii) In dye penetrant testing, why does dye gets drawn into cracks of sample? Explain the complete procedure of dye penetrant testing. (3)