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12425 03 Hours / 70 Marks Seat No.

Instructions – (1) All Questions are Compulsory.

- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data, if necessary.
- (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

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1. Attempt any FIVE of the following :

- a) List any two specifications of the digital encoder speed tachometer.
- b) Define force and state its units.
- c) Draw the sketch of capacitive pickup type thickness measurement transducer.
- d) List the types of vibration measurement transducer.
- e) Define
 - i) Sound pressure and
 - ii) Sound power
- f) Draw a labelled sketch of strain gauge load cell.
- e) State any two common causes of vibration.

2. Attempt any THREE of the following :

- a) Describe the trouble shooting procedure of the electromagnetic relative vibration pick up sensor.
- b) Explain Ultrasonic vibration type thickness measurement transducer working principle with neat labelled diagram.
- c) Select relevant force transducer for preventing machinery from overloading with justification.
- d) Explain with sketches the working of piezoelectric type sound measurement transducer.

3. Attempt any <u>THREE</u> of the following :

- a) Select relevant speed transducer for direction and speed measurement of rotating body with justification.
- b) Describe the working of sound level meter with neat labelled diagram.
- c) Describe the calibration procedure of stroboscope contact less tachometer.
- d) Select relevant force transducer which works on hydraulic method with justification.

4. Attempt any <u>THREE</u> of the following :

- a) Select relevant thickness measurement transducer for measuring thickness of paper with justification.
- b) Differentiate the relative displacement vibration pick up and electromechanical vibration pick up vibration measurement transducer. (Any two points)
- c) Explain the working principle of microphone sound transducer with the sketch. List the type of microphones.
- d) Describe the trouble shooting procedure of D.C. tachometer for speed measurement.
- e) Describe with neat sketch the working principle of pressductor load cell type of force transducer.

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5. Attempt any TWO of the following :

- a) Describe in detail the calibration procedure for relative displacement vibration pickup type of vibration measurement transducer.
- b) Explain the construction and working of photo pick up tachometer with neat diagram.
- c) Explain the working principle of proving ring load cell force transducer with neat diagram.

6. Attempt any TWO of the following :

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- a) Select relevant thickness measurement transducer for measurement of foil thickness with justification.
- b) Describe the calibration procedure for electro-mechanical relative vibration pick up type vibration measurement transducer.
- c) Select relevant sound measurement transducer for sound measurement near generator with justification.