

22432

24225

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(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

1. **Attempt any FIVE of the following :** **10**
- a) Name any four contactless tachometer.
 - b) Define force. State its units.
 - c) Draw the sketch of inductive type thickness measurement transducer.
 - d) Name the unit of vibration. Name any two vibration pick up.
 - e) Define piezoelectric effect.
 - f) Name the sensor used for vibration measurement.
 - g) Enlist the four transducer for force measurement.

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- 2. Attempt any THREE of the following :** **12**
- a) Select the relevant thickness measurement transducer for the measurement of thickness of paper.
 - b) Describe with sketches the electromagnetic vibration pickup.
 - c) Describe with sketches the electrodynamic type transducer for sound measurement.
 - d) Describe with sketches the strain gauge load cell for force measurement.
- 3. Attempt any THREE of the following :** **12**
- a) Select relevant speed transducer for measurement of frequency with justification.
 - b) Describe the principle of working of microphone. State its types.
 - c) Describe with sketches how AC tachometer is used for speed measurement.
 - d) Describe with sketches the working of hydraulic force meter.
- 4. Attempt any THREE of the following :** **12**
- a) Describe the calibration procedure for any type of contact tachometer.
 - b) Describe with sketches the working of piezoelectric load cell.
 - c) Describe with sketch the method of thickness measurement using capacitive pickup.
 - d) Describe the common causes of vibration.
 - e) State the principle of sound transducer used in electronic communications and audio recording device.

5. Attempt any TWO of the following :**12**

- a) Describe with schematic the speed measurement using stroboscope.
- b) Describe the working of proving ring load cell with diagram. State its two applications.
- c) Describe with diagram the relative displacement vibration pickup method.

6. Attempt any TWO of the following :**12**

- a) Compare between capacitive pick up and radiation pick up type of thickness measurement methods.
 - b) Describe with sketches the working of electromechanical relative vibration pick up.
 - c) Describe with the diagram the working of condenser type microphone. List any two specifications of it.
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