

22432

22223

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) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
 - (8) Use of steam tables, logarithmic, Mollier's chart is permitted.

Marks

- 1. Attempt any FIVE of the following: **10****
- a) Define speed. Give its unit.
 - b) Define force. Give its unit.
 - c) Draw contact type capacitive thickness pickup transducer.
 - d) State any two needs of vibration measurement.
 - e) Define sound waves. Give unit of its intensity.
 - f) State any two limitations while measuring force.
 - g) Draw a piezo-electric accelerometer.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Explain the process of calibration of vibration pick-up / transducer in brief.
 - b) Explain ultrasonic vibration method of thickness measurement with neat sketch.
 - c) Describe the troubleshooting procedure of proving ring force transducer.
 - d) State any four applications of acoustical measurement.
- 3. Attempt any THREE of the following:** **12**
- a) Explain the working of A.C. tachometer generator with neat sketch.
 - b) Draw a block diagram of sound level meter. Explain it in brief.
 - c) Suggest relevant contactless speed transducer for motor shaft speed measurement. Explain it in brief.
 - d) Explain calibration process for strain gauge load cell weight / force measurement system.
- 4. Attempt any THREE of the following:** **12**
- a) Select the relevant transducer for thickness measurement of magnetic material. Explain measurement process.
 - b) Choose relevant transducer to measure absolute vibration. Describe its working with neat sketch.
 - c) Define the following terms related to sound measurement
 - i) Sound power and
 - ii) Intensity level
 - d) Describe operation of photopickup speed measuring transducer with neat sketch.
 - e) Describe working of pressductor load cell with neat sketch.

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

- a) Describe with neat sketch the construction and working of bonded strain gauge relative displacement vibration pickup.
- b) Describe shaft speed measurement using stroboscope for single and double mark on shaft.
- c) Describe with neat sketch constructional feature of hydraulic force meter. Explain its working.

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

- a) Illustrate the constructional features of electromagnetic relative vibration pickup. Describe its working.
 - b) Select relevant non-contact type thickness measurement transducer to examine hidden flaws in castings. Describe measurement process.
 - c) Select a sound measurement transducer near turbine generator (TG set) with justification.
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