

Scheme - I

Sample Question Paper

Program Name : Diploma in Instrumentation / Instrumentation & Control

Program Code : IS / IC

Semester : Fourth

Course Title : Industrial Transducers

Marks : 70

22432

Time: 3 Hrs.

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) Preferably, write the answers in sequential order.

Q.1) Attempt any FIVE of the following.

10 Marks

- a) List any two specifications of the Stroboscope speed transducer.
- b) Define force and state its units
- c) Draw the sketch of LVDT.
- d) State any two common causes of vibration.
- e) Differentiate the salient features of Condenser type and Piezoelectric crystal type of sound measurement transducers.
- f) State the principle of Strain gauge Load cell.
- g) Name the sensor used for measuring vibration.

Q.2) Attempt any THREE of the following.

12 Marks

- a) Describe the calibration procedure for the Electromagnetic type of vibration measurement transducer.
- b) Explain with sketches the working of the Inductive type of thickness measurement transducer
- c) Select relevant force transducer for preventing machinery from overloading with justification.
- d) Explain with sketches the working of Electrodynamic type of sound measurement transducer.

Q.3) Attempt any THREE of the following. 12 Marks

- a) Select relevant speed transducer for speed (rpm) of a rotating body with justification.
- b) Describe the calibration procedure of sound measurement measuring system.
- c) Select relevant speed transducer for the measurement of frequency with justification.
- d) Describe the troubleshooting procedure of Proving ring Loadcell for force measurement transducer.

Q.4) Attempt any THREE of the following. 12 Marks

- a) Select relevant thickness measurement transducer for measuring thickness of paper with justification
- b) Prepare the specification of Relative displacement vibration pick up vibration measurement transducer.
- c) State the sound transducer widely-used in electronic communications and audio recording device and state its principle.
- d) Describe the troubleshooting procedure of AC Tachometer for speed measurement transducer.
- e) Describe the troubleshooting procedure of the Piezoelectric Load cell force measurement transducer.

Q.5) Attempt any TWO of the following. 12 Marks

- a) Select relevant transducer for measuring the coating thickness with justification.
- b) Describe the calibration procedure for Digital encoder
- c) Define force and explain with sketches the working hydraulic force meter.

Q.6) Attempt any TWO of the following. 12 Marks

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

Scheme - I

Sample Test Paper - I

Program Name : Diploma in Instrumentation / Instrumentation & Control

Program Code : IS / IC

Semester : Fourth

Course Title : Industrial Transducers

Marks : 20

22432

Time: 1 Hour.

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) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR.

08 Marks

- a) Define Force.
- b) State any two units of speed.
- c) List any two contactless tachometers.
- d) List any four contact type transducer for thickness measurement.
- e) Draw the diagram of Magnetic pickup tachometer.
- f) State any two applications of force measurement transducer.

Q.2 Attempt any THREE.

12 Marks

- a) Define thickness and state its units.
- b) Describe the calibration procedure for Strain gauge Load cell weight measurement setup.
- c) Prepare the specifications of Photo pickup speed transducer.
- d) Select relevant transducer for measuring compressional and tensile forces with justification.
- e) Explain with sketches the working of Pressductor Load cell type of force transducer .

Scheme - I

Sample Test Paper - II

Program Name : Diploma in Instrumentation / Instrumentation & Control

Program Code : IS / IC

Semester : Fourth

Course Title : Industrial Transducers

Marks : 20

22432

Time: 1 Hour.

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) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR.

08 Marks

- a) Define Sound
- b) State any two units of vibration measurement
- c) Draw the sketch of Ultrasonic vibration type transducer
- d) State any two common causes of vibration
- e) List types of microphone for sound measurement.
- f) State two specification of Absolute vibration sensors

Q.2 Attempt any THREE.

12 Marks

- a) Differentiate the contact and non-contact type of thickness measurement transducers
(4 points)
- b) Prepare the specification of Relative displacement vibration pick up vibration measurement transducer
- c) Select relevant vibration measurement transducer for Bearing failures application with justification.
- d) Describe the troubleshooting procedure of Condenser type sound measurement transducer.
- e) Describe with sketches the construction of Piezoelectric crystal type sound measurement transducer with sketches