

22372

22232

3 Hours / 70 Marks

Seat No.

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- 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.

Marks

1. Attempt any FIVE of the following :

10

- (a) Define : (a) Active transducer (b) Passive transducer.
- (b) List the types of strain gauge transducer.
- (c) Give classification of transducer based on transduction phenomenon.
- (d) List the different methods used for humidity measurement.
- (e) List the applications of hall effect sensors.
- (f) Define signal conditioning.
- (g) Define hysteresis.

2. Attempt any THREE of the following :

12

- (a) Which type of transducer is used for displacement measurement ? Explain its working principle with neat diagram.
- (b) Draw a constructional diagram of RTD and explain the principle of its operation.
- (c) Explain the working of ultrasonic flowmeter with a suitable diagram.
- (d) What is microphone ? Give its types and list its applications.



- 3. Attempt any THREE of the following :** **12**
- (a) Explain electrical torsion meter with neat diagram. Give its advantages and disadvantages.
 - (b) Draw a neat diagram of Data Acquisition System. Explain its working and give its applications.
 - (c) List different direct and indirect level measurement method. Explain any one with neat diagram.
 - (d) Explain working principle of mechanical tachometer with neat diagram. Give its advantages and disadvantages.
 - (e) What is the importance of signal conditioning in electronic circuit ? List different Linear and Non-Linear signal conditioning circuits.
- 4. Attempt any THREE of the following :** **12**
- (a) Draw a neat construction diagram of McLeod gauge and explain its working.
 - (b) Explain working of DC Wheat Stone's bridge using suitable diagram.
 - (c) Give difference between Variable Area Flowmeter and Variable Head Flowmeter.
 - (d) What is Piezoelectric transducer ? Explain. Also list its applications.
 - (e) Draw a neat sketch of three op-amp instrumentation amplifier and explain its operation in brief. List its applications.
- 5. Attempt any TWO of the following :** **12**
- (a) List different types of dynamometers. Explain any one with neat diagram.
 - (b) Draw the construction diagram of radiation pyrometer and explain its working. Give its applications.
 - (c) What is Orifice plate ? Draw its different shapes. Explain how it is used to measure differential pressure.
- 6. Attempt any TWO of the following :** **12**
- (a) List different desirable characteristics of a transducer. Define any six of them.
 - (b) What for a Pirani gauge is used ? Explain with a neat diagram and give its advantages.
 - (c) Explain sling Psychrometer with neat construction diagram. Also give its advantages.
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