

Q.24 Define torque. What is the unit of torque? Explain measurement of torque using strain gauge torque meter.

Q.25 Write technical note on the following:

- a) Thermocouple
- b) Thermistors

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**5th Sem / ECE, ECE( For Speech and Hearing Impaired)**

**Subject : Instrumentation**

Time : 3 Hrs.

M.M. : 60

**SECTION-A**

**Note:** Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 The primary sensing element may be

- a) Transducer
- b) Data storage device
- c) Signal conditioning
- d) PMMC instrument

Q.2 Which transducer is known as 'self generating transducer'?

- a) Analog transducer
- b) Digital transducer
- c) Passive transducer
- d) Active transducer

Q.3 Which of the following can be measured using tachometer?

- a) Vibration
- b) Strain
- c) Acceleration
- d) Angular speed

Q.4 Thermistors are used for measurement of \_\_\_\_\_

- a) Displacement            b) Torque
- c) Temperature            d) pH

Q.5 pH of bases solution is \_\_\_\_\_

- a) ZERO                      b) <7
- c) 7                            d) >7

Q.6 The humidity is expressed in \_\_\_\_\_

- a) volts                      b) Percentage
- c) Ohms                      d) Decibels

### SECTION-B

**Note:** Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Define measurand.

Q.8 Gauge Factor = \_\_\_\_\_

Q.9 Expand RTD \_\_\_\_\_.

Q.10 Load cell converts \_\_\_\_\_ into an electrical signal.

Q.11 Ultrasonic flow meters consist of two piezoelectric crystal. (True/False)

Q.12 Piezoelectric crystal can act as an inverse transducer. (True/False)

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### SECTION-C

**Note:** Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Define measurement. Draw the block diagram of general measurement system.

Q.14 Write the advantages of electrical transducers.

Q.15 Explain pressure measurement by using bourdon tube.

Q.16 Explain semiconductor strain gauge.

Q.17 Explain the working of LVDT.

Q.18 Write short note on photoelectric tachometer.

Q.19 Explain basic principle of bimetallic thermometer.

Q.20 Explain the basic principle of electromagnetic flow meter.

Q.21 Explain electronic pH measurement.

Q.22 Explain any one indirect method of level measurement.

### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Explain the classification of transducers.

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