

Roll No. ....

**24358**

**B. Tech 6th Semester (ME)**

**Examination – May, 2016**

**MEASUREMENT AND INSTRUMENTATION**

**Paper : ME-310-F**

Time : Three Hours ]

[ Maximum Marks : 100

*Before answering the question, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

**Note :** Question No. 1 is *compulsory*. Students have to attempt *five* questions in total atleast *one* question from each Section.

- |   |   |
|---|---|
| 1. (a) Define the standards and calibration.            | 5 |
| (b) What is digital encoder ?                           | 5 |
| (c) What is torque transducer ?                         | 5 |
| (d) What is the role of selective radiation pyrometer ? | 5 |

## SECTION – A

2. (a) What are different classification of instrument ? 10
- (b) What are functional elements of a measurement system ? 10
3. Explain the following : 20
- (i) Resolution, Threshold, sensitivity, Backlash.
- (ii) Response of first and second order system to step, ramp function.

## SECTION – B

4. (a) What is linear variable differential transformer ? Explain in detail. 10
- (b) What is photo conductive transducer ? Explain in detail. 10

5. Explain the following : 20

- (i) Strain gage bridge circuit.
- (ii) Photo voltaic transducer.

### SECTION - C

6. (a) Explain the hydraulic load cell and pneumatic load cell in detail. 10

(b) Explain the hydraulic amplifier in detail. 10

7. Write short note on the following : 20

- (i) Torque transducer.
- (ii) Seismic devices.

### SECTION - D

8. (a) What is flow rate meter and variable head meter ? 10

(b) What are different Thermocouple materials ? Also explain the thermo-electric sensors. 10

9. Explain the following :

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(i) Dynamic effects of connecting tubing. (11.1.3)

(ii) Solid rod thermometer.

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