Code No. 5180

FACULTY OF ENGINEERING

B.E. 3/4 (ECE) II-Semester (Main) Examination, June 2016

Subject : Electronic Instrumentation

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1 What is the significance of "Limiting Error"?
2 A moving coil meter has a uniform scale with 50 divisions and gives FSR of 5 A. The instrument can read up to ¼" of scale division with a fair degree of certainty. Determine the resolution of the instrument in mA.
3 What is a transducer and how are they classified?
4 Why resistance strain gauges used in pairs? And also list out the important precautions to be taken while using metallic wire strain gauges.
5 Define "Sound Pressure Level" and "Sound Power Level".
6 Detail a typical application of a photo voltaic cell.
7 List the advantages of DVMs over analog voltmeters.
8 Distinguish between skin surface electrode and needle electrode.
9 Explain the need for delayed time base oscilloscope.
10 Explain the basic principle of operation of ultrasonic imaging system.

PART – B (5 x 10 = 50 Marks)

11 a) Enumerate the type of errors that are likely to occur in measurement and show how such errors can be minimized and evaluated.
b) Explain about various quality management standards.

12 a) Describe the different modes of operation of Piezo-electric transducers.
b) Explain how rate of fluid flow is measured using a hot-wire anemometer.

13 a) What method do you suggest to measure the level of molten metal at temperature of about 1500^{0}C in a mould. Explain.
b) Distinguish between humidity and moisture. Explain different methods used for measurement of humidity.

14 a) With a neat sketch, explain the operation of successive approximation type DVM.
b) Draw the block-diagram of Delayed-time base oscilloscope and explain its operation.

15 a) What are resting and action potentials? Show the wave-form of action potentials and explain various mechanisms.
b) Compare ultrasonic and magnetic resonance imaging techniques.

16 a) What is a microphone? Explain about the constructional details and principles of operation of different microphones.
b) Explain with neat diagram and necessary mathematical equations how a capacitance transducer can be used for thickness monitoring device.

17 Write short notes on the following :
a) Elements of ISO 9001
b) SCADA

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