

**324512(24)**

BE (5<sup>th</sup> Semester)

EI

Examination, Nov.-Dec., 2015

(Old Scheme)

**Electronic Instrumentation**

Time Allowed : 3 hours

Maximum Marks : 80

Minimum Pass Marks : 28

- Note :* (i) Part (a) of each question is compulsory. Attempt any two parts from (b), (c) and (d).  
(ii) The figures in the right-hand margin indicate marks.

**Unit - I**

1. (a) Define resolution. 2  
(b) Explain dual-slope integrating type of DVM with their advantages and disadvantages. 7  
(c) A 3½-digit DVM has an accuracy specification of 0.05% of reading 1 digit.  
(i) What is the error in volt when reading is 2 V on its 10 V range?  
(ii) What is the percentage error in reading, when it is 0.1V on its 10 V range? 7  
(d) Describe the working principle of ramp type DVM with the help of suitable block diagram. 7

(Turn Over)

(2)

(3)

**Unit - II**

- 2. (a) Define gauge factor. 2
- (b) Explain the working principle of piezo-electric transducer with the help of its equivalent circuit. 7
- (c) Derive the expression for the gauge factor of strain gauge. 7
- (d) Explain the construction and working of LVDT with the help of suitable diagram. What are its advantages and disadvantages? 7

**Unit - III**

- 3. (a) Define data loggers. 2
- (b) Explain the classification of recorders. State the difference between potentiometric and galvanometric recorders. 7
- (c) Describe general DAS with proper block diagram. 7
- (d) Explain the working of successive approximation A to D converter. 7

**Unit - IV**

- 4. (a) Define probes. 2
- (b) Explain the working of function generator along with its block diagram. 7
- (c) Explain Lissajous' pattern for phase-angle measurement. 7
- (d) Explain, with the help of block diagram, the working of an oscilloscope. 7

**Unit - V**

- 5. (a) Write the advantages of PLC. 2
- (b) Describe fixed input, output PLC and modular input, output PLC hardware configuration. 7
- (c) Describe PLC structure and operation response time. 7
- (d) Write the advantages and disadvantages of DCS technique. 7

—