1134

Code : 15EC34T

Register Number | | | | | | | |

III Semester Diploma Examination, April/May-2017

ELECTRONIC MEASUREMENTS AND INSTRUMENTATION

Time : 3 Hours] **[Max. Marks : 100**

Note : (i) Answer any **six** question from **Part-A**.
(ii) Answer any **seven** question from **Part-B**.

PART – A **5 × 6 = 30**

1. Define error. List the different kinds of errors with respect to measurement. **5**

2. Explain briefly the strain gauge transducer. **5**

3. Explain the working principle of P.M.M.C. meter. **5**

4. Explain the working of AC voltmeter using full wave rectifier. **5**

5. List the application of Digital storage oscilloscope. **5**

6. Sketch the block diagram of Digital storage oscilloscope. List any two advantages of Digital storage oscilloscope. **5**

7. List the features of digital meters. **5**

8. Explain how electronic counter can be used for totalizing. **5**

9. Discuss the precautions to be taken to prevent instrument damage. **5**

PART-B $7 \times 10 = 70$

10. (a) An ammeter is used for measurement of 20 mA current. The reading obtained is 19.85 mA. 5

Determine :

(i) absolute error

(ii) percentage error

(iii) Accuracy

(b) Explain with block diagram Generalised Electronic Measurement System. 5

11. (a) Set of 5 independent voltage measurements are as follows : 5

10.15 V, 10.10 V, 10.19 V, 10.13 V, 10.12 V

Calculate the arithmetic mean and average deviation.

(b) Describe active and passive transducer. Give one example for each. 5

12. (a) Illustrate how load cell can be used for measuring force. 5

(b) Explain how piezoelectric material can be used as a transducer. List any two piezoelectric material. 5

13. (a) Define Calibration. Describe the process of calibration of DC Voltmeter. 5

(b) Explain the working of Electrodynamometer type voltmeter. 5

14. Explain with neat block diagram the working of solid state voltmeter using op-amp. 10

15. (a) Explain the concept of dual trace in CRO. 5

(b) Define a CRO probe. List the various types of CRO probes. 5

16. Illustrate how function generator can be used to produce different kinds of waveform. List any two application. 10

17. Explain how a ramp type DVM can be used for measuring voltage. 10

18. (a) List the applications of Digital LCR Meter. 5

(b) Sketch and explain with block diagram digital frequency meter. 5

19. (a) List the various causes of interference in an electronic measurement system. 5

(b) Illustrate the procedure of generalised trouble shooting. 5