

Code : 15EC34T

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III Semester Diploma Examination, Nov./Dec.-2018

**ELECTRONIC MEASUREMENTS AND
INSTRUMENTATION**

Time : 3 Hours]

[Max. Marks : 100

Instructions : (1) Answer any **six** questions from Part – A.

(2) Answer any **seven** questions from Part – B.

PART – A

1. What are primary and secondary standards ? Explain. 5
2. List the factors for selection of a transducer. 5
3. Define voltmeter sensitivity and list any three merits of electronic voltmeters. 5
4. Explain the principle of PMMC meter. 5
5. List the applications of CRO. 5
6. Mention the features of spectrum analyser. 5
7. List the advantages and disadvantages of digital meters. 5
8. Compare analog meters with digital meters. 5
9. Explain how shielding reduces interference. 5

PART – B

10. (a) Compare DC and AC bridges. 5
(b) Explain the necessity of transducers. 5
11. The readings of a resistor by Ohmmeter are $450.7\ \Omega$, $450.2\ \Omega$, $450.8\ \Omega$, $450.5\ \Omega$, $450.4\ \Omega$, $450.1\ \Omega$ and $450.0\ \Omega$. Calculate arithmetic mean, average deviation and standard deviation. 10
12. Explain the working principle of LVDT. 10
13. (a) Define calibration. Explain the calibration process of DC Voltmeter. 5
(b) Explain loading effect and voltmeter sensitivity. 5
14. Design a multirange DC milli-ammeter using a basic movement with $R_m = 50\ \Omega$ and full scale deflection current $I_m = 1\ \text{mA}$. The ranges required are 10
(i) $0 - 10\ \text{mA}$
(ii) $0 - 50\ \text{mA}$
15. (a) Explain the working of standard RF signal generator. 5
(b) List the applications of DSO. 5
16. Explain the working of a CRO with neat block diagram. 10
17. (a) List the features of IEEE-488 GPIB. 5
(b) Explain the block diagram of digital LCR meter. 5
18. (a) Explain the working of a digital voltmeter. 5
(b) Explain the working of digital frequency meter. 5
19. Explain the concept and need of electrical grounding and shielding. 10
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