

B.TECH. DEGREE EXAMINATION, NOVEMBER 2014**Fifth Semester**

Branch : Applied Electronics and Instrumentation

AI 010 503—BASIC INSTRUMENTATION AND RECORDING SYSTEM (AI)

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A*Answer all questions.**Each question carries 3 marks.*

1. What is systematic error ? Explain in detail.
2. State and prove the bridge balance condition.
3. Enumerate the features and applications of wave analyzer.
4. What is the principle of digital alpha numeric display ? Explain.
5. Explain the characteristics of XY plotters in detail.

(5 × 3 = 15 marks)

Part B*Answer all questions.**Each question carries 5 marks.*

6. Explain the generalized configuration of an instrumentation system with a neat diagram.
7. What is the principle of a KVA ? Explain in detail.
8. What is the difference between DC and AC voltmeters ? Explain.
9. Explain the advantages and applications of current transformer.
10. What is the need for delay lines in oscilloscopes ? Explain.

(5 × 5 = 25 marks)

Part C*Answer all questions.**Each full question carries 12 marks.*

11. (i) Define and explain all the parameters of a measurement system.
(ii) Explain the following :—
 - (a) Static and dynamic characteristics ;
 - (b) Significant figures.

Or

Turn over

12. (i) Discuss the different types of errors in a measurement system.
(ii) Give an account on "Requirements of a measurement system".
13. (i) Draw Maxwell bridge and explain its principle in detail. Derive its balance condition.
(ii) Draw a neat diagram of Q meter and explain it in detail.

Or

14. (i) Explain the principle and applications of Schering bridge with a neat diagram.
(ii) Give an account on "Potential transformer".
15. (i) Explain the concept of a wave analyzer with a neat diagram.
(ii) Draw a neat block diagram of harmonic distortion analyzer and explain its working principle in detail.

Or

16. (i) Draw a neat block diagram of digital LCR meter and explain its principle in detail.
(ii) Give an account on "Dual slope volt meter".
17. Differentiate wave analyzer from spectrum analyzer. Explain the difference. Explain their applications.

Or

18. Draw a neat diagram of successive approximation type digital voltmeter and explain its working principle in detail. Differentiate it from dual slope digital voltmeter.
19. (i) Explain the concept of DSO oscilloscope with a neat block diagram.
(ii) Explain the advantages and potential applications of moving coil recorders.

Or

20. (i) Explain the principle of UV plotters with a neat diagram.
(ii) Write a technical note on "Thermal recording".

(5 × 12 = 60 marks)