

Reg. No. : _____

Question Paper Code : 11297

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2011

Sixth Semester

Electronics and Communication Engineering

EC 2351 — MEASUREMENTS AND INSTRUMENTATION

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions

PART A — (10 × 2 = 20 marks)

1. Mention the significance of measurements.
2. Compare Moving coil with Moving iron instruments.
3. Draw the internal structure of CRT and list its functions.
4. What are the two significant problems with diodes when used for RF rectification?
5. What is Barkhausen Criteria for sustained oscillation?
6. Draw the block diagram of spectrum analyzer.
7. What are the advantages of digital instruments over analog instruments?
8. What are the different types of Digital Voltmeter?
9. Draw the block diagram of Digital Data Acquisition System.
10. What are the key features of fully automatic digital instruments?

PART B — (5 × 16 = 80 marks)

11. (a) (i) What is the need for standards of measurements? How they are classified? Explain (8)
- (ii) How the unknown frequency is measured using Wein bridge method? (8)

Or

- (b) (i) What are the different types of errors in measurement? Explain. (8)
(ii) How do you measure the unknown inductance using Hay Bridge? (8)
12. (a) (i) Draw the block diagram of sampling oscilloscope and explain the principle. (8)
(ii) Explain the measurement of quality factor of a coil. (8)

Or

- (b) (i) Discuss the measurement of DC and AC voltages and currents using an Electronic Multimeter. (8)
(ii) Draw the block diagram of True RMS reading voltmeter and explain its operation. (8)
13. (a) (i) Explain how function generator generates sine wave, triangular wave and square wave. (8)
(ii) Draw the block diagram of sweep-frequency generator and explain. (8)

Or

- (b) (i) What is wave analyzer? How it analyzes the harmonics? Explain. (8)
(ii) Explain the vector network analyzer and list its application. (8)
14. (a) (i) How computer controlled measurement system is used for testing radio receiver? (8)
(ii) What is virtual instrument? List the advantages of virtual instrument over conventional instrument (8)

Or

- (b) (i) With necessary diagrams explain Ramp type digital voltmeter. (8)
(ii) Draw the block diagram of digital frequency meter and explain. (8)
15. (a) (i) What are the factors to be considered while interfacing transducers to electronic control and measuring systems? (8)
(ii) Draw the block schematic representation of the IEEE 488 instrumentation bus and explain. (8)

Or

- (b) (i) Explain the optical time domain reflectometer with a neat diagram. (8)
(ii) Write a detailed note on data loggers. (8)