

B 311

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

Fourth Semester

Electronics and Communication Engineering

EC 245 — MEASUREMENTS AND INSTRUMENTATION

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the main advantages of an electrical transducer?
2. Define the term "Accuracy".
3. What are the two basic factors in specifying the dynamic performance of an instrumentation system?
4. Mention the different kinds of modulation.
5. What is phase-sensitive detector?
6. Mention the different types of standards in measurement.
7. What is meant by 'calibration'?
8. What is the difference between digital and analog oscilloscopes?
9. What is the basic operating principle of digital tape recording?
10. What is a three-state bus transceiver?

PART B — (5 × 16 = 80 marks)

11. (i) With a neat block diagram explain the microprocessor based measurement system. (8)
- (ii) Describe a computer-controlled measurement system for testing a radio receiver. (8)

12. (a) Classify and explain with examples the different types of possible errors in measurement. (16)

Or

- (b) Define an electrical transducer and give the classification of it. Also explain the function of any two different types of transducers. (16)

13. (a) With a neat block diagram explain the function of a spectrum analyzer. (16)

Or

- (b) Discuss briefly various kinds of signal generators. (16)

14. (a) Explain the operation of a digital multimeter with neat diagram. (16)

Or

- (b) Give the classification of digital voltmeters (DVM) and explain them. (16)

15. (a) With the necessary diagrams, explain the operation of a cathode-ray-oscilloscope in detail. (16)

Or

- (b) Write short notes on :
- (i) Magnetic Recorders (5)
 - (ii) Ink-jet printers (5)
 - (iii) Disk files and floppy disks (6)