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Question Paper Code : 86606

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Fifth Semester

Electronics and Communication Engineering

EI 1306 — MEASUREMENTS AND INSTRUMENTATION

(Regulations 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Draw the block diagram of a measurement system.
2. Mention the advantages of Anderson bridge.
3. Mention any four special oscilloscopes.
4. Mention any two applications where vector meter is used for measurement.
5. What are the conditions to be satisfied for an ac bridge to be balanced?
6. In a Q meter, at 1.5 mHz, $C_1 = 550$ pf. At 3mHz, $C_2 = 110$ pf. Determine the unknown values of self capacitance and inductance.
7. What is mean by Quantization?
8. Draw the basic circuit diagram of a Digital frequency meter.
9. State the reasons for losses in optical fibers.
10. Write the advantages of digital instruments over analog instruments.

PART B — (5 × 16 = 80 marks)

11. (a) A moving coil instrument gives full scale deflection for a current of 20 mA with a potential difference of 200 mV across it. Determine.
 - (i) The shunt resistance required to use it as an ammeter to get a range of 0–200 A.
 - (ii) Multiplier required to use it as a voltmeter of range 0 – 500 V. (16)

Or

- (b) With a schematic diagram explain the functioning of attraction and repulsion type of moving iron instruments. (16)

12. (a) Describe the block schematic of Cathode ray oscilloscope with neat sketch. Mention its applications. (14+2)

Or

- (b) Illustrate and describe the RF voltage and power measurements in detail. (16)
13. (a) Explain in detail about Heterodyne Wave Analyzer. (16)

Or

- (b) (i) Draw and Explain the block diagram of Simple RF signal Generator. (8)
- (ii) Explain about Sweep Generator with the help of Block diagram. (8)
14. (a) Illustrate and explain the block diagram, system waveforms and operation of a digital voltmeter. (16)

Or

- (b) Describe the frequency counter in detail with neat diagram. List out its applications. (16)
15. (a) With a neat diagram explain the various functional elements of a digital data acquisition system. (16)

Or

- (b) (i) Explain the working theory of optical time domain reflectometer. (8)
- (ii) Explain the important features of IEEE 488 bus. (8)
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