Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 80456

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

Sixth Semester

Electronics and Communication Engineering

EC 2351/EC 61/10144 EC 602 – MEASUREMENTS AND INSTRUMENTATION

(Regulations 2008/2010)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List out the various standards of measurements.

2. Mention the errors in moving coil meters.

3. Compare CRO and DSO,

4. What is True RMS?

5. How do we generate a triangular waveform?

6. What is intermodulation distortion?

7. Define the term automation in Voltmeter.

8. Give the comparison table between analog voltmeter and digital voltmeter.

9. What are the elements of a digital data acquisition system.

10. Bring out the significance of IEEE-488 bus standard.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Distinguish between international, primary, secondary and working standards. (8)

(ii) How systematic errors are classified? Give suitable examples and explain the measures taken to minimize these errors, (8)

Or

(b) (i) Explain in detail about the various error measurement system with statistical analysis (8)

(ii) Describe in detail about the moving iron meters with suitable examples. (8)

12. (a) Discuss in detail about the function of delay time base oscilloscopes with neat diagram. (16)

Or

(b) With neat diagram explain in detail about the function of following measurement system.

(i) Vector meter (8)

(ii) Q meter. (8)

13. (a) (i) Bring out the differences between a pulse and a square wave generator. Draw the block diagram of a typical general purpose pulse generator and explain its working. (8)

(ii) A circuit having an effective capacitance of 160 pF is tuned to a frequency of 1.2 MHz. In this circuit the current falls to 70.7 % of its resonant value when the frequency of an emf of constant magnitude injected in series with the circuit deviates from the resonant frequency by 6 KHz. Calculate the Q factor and effective resistance by 6 KHz, (8)

Or

(b) (i) With the help of a block schematic, explain the working of a digital LCR meter, Bring out its salient features and mention its advantages. (8)

(ii) Discuss in detail about the fundamental suppression type distortion analyser for determining the harmonics present in a signal . (8)

14. (a) Explain the architecture of computer controlled Virtual Instrumentation and mention its applications in various fields. (16)

Or

(b) Write short notes on the following topics.

(i) Automatic polarity indication (8)

(ii) Automatic ranging (4)

(iii) Automatic zeroing (4)

15. (a) (i) Briefly explain the elements of digital data acquisition system. (8)

(ii) Write short notes on IEEE488 bus standard. (8)

Or

(b) (i) What is data logger? Explain the role of data loggers in data acquisition system. (8)

(ii) Write short notes on optical time domain reflectometer. (8)

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