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

Question Paper Code: 41453

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Fifth Semester

Electronics and Communication Engineering

14UEC503 - ELECTRONIC MEASUREMENTS AND INSTRUMENTATION

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The most common method for measurement of low resistance is

   (a) Wheatstone bridge (b) Potentiometer method
   (c) Voltmeter-ammeter method (d) Kelvin's double bridge

2. As the deflection of the moving system increases, the controlling torque in an indicating instrument_____.

   (a) remains the same (b) increase
   (c) decrease (d) becomes zero

3. A pattern displayed by oscilloscopes which has a steady characteristic is called

   (a) Lissajous pattern (b) Nyquist pattern
   (c) Barkhausen’s criterian (d) Fermat’s pattern

4. The principle of operation of Q-meter is based on

   (a) self inductance (b) mutual inductance
   (c) series resonance (d) parallel resonance

5. The function of an attenuator in a signal generator is to control the

(a) input current level (b) output current level
(c) input amplitude level (d) output amplitude level

6. Harmonics are very closed in signal frequency hence _____ to distinguish.

(a) difficult (b) easy (c) very simple (d) uncomplicated

7. The period mode preferred for measurement of _____frequency in a frequency counter

(a) very High (b) high (c) very low (d) low

8. The device used to measure the voltage, current and resistance is known as

(a) Voltmeter (b) Ammeter (c) Wattmeter (d) Multimeter

9. The main component of data acquisition system is a

(a) Function generator (b) Ammeter (c) Sensor (d) Voltmeter

10. _____ instrument is used in computer controlled instrumentation

(a) Signal generator (b) Spectrum analyzer
(c) Sweep generator (d) Q meter

PART - B (5 x 2 = 10 Marks)

11. List any four static characteristics of a measuring system.

12. What is Vector voltmeter?

13. Write any three applications of wave analyzer.

14. How is trigger time error reduced?

15. Write short notes on data loggers.

PART - C (5 x 16 = 80 Marks)

16. (a) Explain in details about the various types of errors in measurement systems. (16)

Or

(b) Describe in details about the following measurement techniques with its advantages and disadvantages

(i) Anderson's bridge (8)

(ii) Schering Bridge (8)

17. (a) With neat sketch explain the block diagram of digital storage oscilloscope. (16)

Or

(b) Describe the function of the following measurement systems

(i) Vector voltmeter (8)

(ii) Q meter (8)

18. (a) (i) What are the basic elements of a function generator? Explain how to generate the square wave, triangle wave and sine wave using function generator. (8)

(ii) Explain the operation of sweep generator. (8)

Or

(b) Enlist the various applications of spectrum analyzer along with the description of its working. (16)

19. (a) Describe a digital multimeter with a help of a block diagram. (16)

Or

(b) Describe in details about the computer controlled test system with suitable example. (16)

20. (a) Draw and explain the block diagram of data acquisition system. (16)

Or

(b) Explain the characteristics of the IEEE 488 bus. How it is used as an interface? Give its advantages and disadvantages. (16)