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Question Paper Code: 45403

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

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. A set of readings has a wide range and therefore it has
 - (a) low precision
 - (b) high precision
 - (c) low accuracy
 - (d) high accuracy
2. 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
3. The resolution of a DVM with 4 digit
 - (a) 1/4
 - (b) 1/10
 - (c) 1/1000
 - (d) 1%
4. A pattern displayed by oscilloscopes which has a steady characteristic is called
 - (a) Lissajous pattern
 - (b) Nyquist pattern
 - (c) Barkhausen's criterion
 - (d) Fermat's pattern
5. Harmonics are very close in signal frequency hence _____ to distinguish.
 - (a) difficult
 - (b) easy
 - (c) very simple
 - (d) uncomplicated
6. Which of the following is a null detection device?
 - (a) Ballistic galvanometer
 - (b) D'Arsonval galvanometer
 - (c) Potentiometer
 - (d) Ammeter

7. A digital voltmeter uses an A/D converter which needs a start pulse, uses an analog comparator and has a relatively fixed conversion time independent of the applied voltage. The A/D converter is
- successive approximation converter
 - digital ramp converter
 - dual slope converter
 - all the above
8. The temperature coefficient of resistance for thermistors is
- Low and negative
 - Low and positive
 - High and negative
 - High and positive
9. IEEE 488 standard based on the transmission of
- 8 bit data words with a parallel 8 bit data bus
 - 16 bit data words with a parallel 16 bit data bus
 - 24 bit data words with a parallel 24 bit data bus
 - 32 bit data words with a parallel 32 bit data bus
10. The main component of data acquisition system is a
- Function generator
 - Ammeter
 - Sensor
 - Voltmeter

PART - B (5 x 2 = 10 Marks)

- Permanent magnet moving coil instrument has uniform scale. Why?
- Define station yards.
- Give the functions of an attenuator in a signal generator.
- What is automatic zeroing?
- Distinguish between dry dock and wet dock..

PART - C (5 x 16 = 80 Marks)

16. (a) Draw the constructional details of moving iron instrument and explain the operation. Also derive its torque equation. (16)

Or

- (i) Identify a suitable A.C bridge to measure the unknown capacitance. Explain the same bridge at a balanced condition to measure the unknown capacitance . (10)
- (ii) Explain the various types of errors. (6)

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) Explain the operation of function generator. (16)

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) Explain in detail about fully automatic digital instruments. (16)

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

Or

(b) Discuss briefly about the optical time domain reflectometer. (16)

