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**Reg. No. :**

**Question Paper Code: 46061**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Sixth Semester

Instrumentation and Control Engineering

14UIC601 – MODERN ELECTRONIC INSTRUMENTATION

(Common to EIE)

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The principle of voltage to time conversion is used in

 (a) Dual slope type DVM (b) Successive approximation type DVM

 (c)Integrating type DVM  (d) None of these

2. An average-reading digital multimeter reads 10V when fed with a triangular wave, symmetric about the time-axis. For the same input an rms-reading meter will read

 (a) 20/√3 (b) 10/√3 (c) 20√3 (d) 10√3

3. A dual beam CRO uses

 (a) Electronic switch (b) Two electron guns

 (c) One electron gun (d) Two time base generator circuits

4. Two sinusoidal signals of equal amplitude and frequency are applied to X and Y plate of CRO respectively. The observed Lissajous pattern is a straight line. The phase shift between signals is Cathode

 (a) zero (b) 90˚ (c) Either zero or 180˚ (d) Either 90 ˚ or 270˚

5. Maximum Distance of EIA 422 has

 (a) 1000 metres (b) 2000 metres (c) 4500 metres (d) 1500 metres

6. The number of bits transmitted or received per second is defined as

 (a) Transmission rate (b) Reception rate (c) Transceiver rate (d) Baud rate

7. Control palette contains

 (a) indicators (b) controls (c) functions (d) controls & indicator

8. Lab VIEW follows \_\_\_\_\_\_\_\_ type of program execution method.

 (a) Top down approach (b) Left to right approach (c) Bottom up approach (d) Sequential approach

9. Plug in device is

 (a) DAQ card (b) VISA

 (c) I/O assistant (d) Both a & b

10. What would be a typical settling time for a general-purpose 8-bit ADC?

 (a) 1 ns to 10 ns (b) 10 ns to 100 ns (c) 1 ms to 10 ms (d) 100 ms to 1s

 PART - B (5 x 2 = 10 Marks)

11. Define Resolution and sensitivity of digital meters.

12. State sampling theorem and specify its significance.

13. State the advantages of RS 485 interface.

14. Distinguish between ‘STOP if TRUE’ and ‘CONTINUE if TRUE’ function in a WHILE loop.

15. Define resolution and write its formulae.

PART - C (5 x 16 = 80 Marks)

16.(a) (i) Modify the function of multimeter to measure voltage, current and resistance. (8)

 (ii) Write short note on digital frequency meter with suitable diagram. (8)

 Or

 (b) Explain how frequency and period are measured in digital instruments. (16)

17. (a) Describe with diagram the operation of a Sampling CRO. Explain with the help of a

 block diagram the operation of a function generator. (16)

Or

 (b) Explain with functional block diagram the operating principle of a CRO. (16)

18. (a) Describe the functions of seven layers of ISO/OSI model. (16)

 Or

(b) Describe in detail about functionality of ISO – OSI model and its significance. (16)

19. (a) (i) Compare text based programming with graphical programming technique. (8) (ii) Lab VIEW follows data flow programming-justify with an example. (8)

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Or

 (b) (i) Build a VI to find the sum and product of array elements and explain? (8)

 (ii) Draw and explain the importance of the basic elements of graph. (8)

20. (a) Describe the major components of a PC-based data acquisition system. (16)

Or

 (b) Discuss the ON/OFF controller design for temperature control process. (16)