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

Question Paper Code : X 60458

B.E./B.Tech. DEGREE EXAMINATIONS, NOV./DEC. 2020
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. Give the difference between accuracy and precision.
2. Give the schematic of Maxwell Bridge.
3. Prepare the comparison table between analog and digital storage oscilloscope.
4. Write a short note on true RMS meters.
5. Why we need to use digital RLC meters ?
6. Briefly explain about the frequency synthesizer.
7. What is a virtual instrumentation ?
8. What are data loggers ?
9. What is the importance of sample and hold circuit in digital data acquisition system ?
10. List any four factors which affect the propagation of light through optical sensors.

PART – B **(5×16=80 Marks)**

11. a) With neat circuit diagrams describe in detail about the following bridge measurement system.
    i) Maxwell bridge. **(8)**
    ii) Wien bridge. **(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 example. **(8)**

12. a) i) Give the detail comparison table between digital storage oscilloscope and analog storage oscilloscope. **(8)**

ii) Describe in detail about the RF voltage and power measurement instruments. **(8)**

(OR)

b) Sketch the basic block diagram of a digital storage oscilloscope and explain the operation. **(16)**

13. a) i) With a neat diagram explain the working of spectrum analyzer. **(8)**

ii) Write short notes on LCR meters. **(8)**

(OR)

b) i) Briefly explain the construction and working of RF signal generator. **(8)**

ii) Write short notes on frequency synthesizers. **(8)**

14. a) i) Discuss in detail about the various blocks used in a digital frequency counter explaining about the functions performed by each block. **(6)**

ii) What are the characteristic features of DVMs ? Bring out the advantages of DVMs. Discuss about the working of Ramp type DVM. **(10)**

(OR)

b) i) Discuss in detail about automation in digital instruments bringing out the salient features and its advantages. **(8)**

ii) Bring out the significance of computer controlled test systems explaining with an application. **(8)**

15. a) i) Describe the multiplexing techniques in data acquisition of systems. **(8)**

ii) Explain the IEEE 488 bus with a neat diagram. **(8)**

(OR)

b) i) Explain the elements of a digital data acquisition system. **(8)**

ii) How to measure the power and system loss using fiber optic techniques ? **(8)**

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