Reg. No. : ⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜

Question Paper Code : X 67598

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
Fifth Semester
Electronics and Communication Engineering
EI 1306 – MEASUREMENTS AND INSTRUMENTATION
(Regulations 2008)

Time : Three Hours   Maximum : 100 Marks

Answer ALL questions

PART – A   (10×2=20 Marks)

1. Define Q-Factor of a coil.

2. What is mean by working standards ?

3. List the applications of cathode ray oscilloscopes.

4. Draw the diagram of Q meter.

5. What is a function generator ?

6. What is a wave analyzer ?

7. Define absolute and relative errors.

8. Compare the analog and digital techniques of a measuring instrument.

9. Arm AB of Maxwell's bridge comprises a 720 Ω resistor, CD has a 300 Ω resistor. In arm AD, a 1.2 kΩ resistor is in parallel with a 0.525 µf capacitor. Determine unknown inductance and resistance.

10. Derive an expression for the unknown frequency which could be determined using a Wien's bridge.

PART – B   **(5×16=80 Marks)**

11. a) Describe the static and dynamic characteristics of a measurement system in detail. **(16)**

(OR)

b) Illustrate and explain the (i) Maxwell's Inductance Bridge and (ii) Wien's bridge in detail. **(16)**

12. a) With suitable derivations, explain the theory of working of a Q meter. Explain a method to determine unknown capacitance using the same. **(16)**

(OR)

b) Explain the important features and applications of vector voltmeters. **(16)**

13. a) With a block diagram explain the construction and working of a typical function generator. **(16)**

(OR)

b) With a schematic explain the working of a Harmonic disortion analyzer. **(16)**

14. a) i) Explain various Techniques of Extending the frequency range of Frequency meter for High Frequency Measurements. **(8)**

ii) Write short notes about Ramp Type Digital Voltmeter. **(8)**

(OR)

b) Explain the Frequency Counter with neat sketch. With the help of Timing Diagram explain its operation. **(16)**

15. a) Illustrate and describe an optical time domain reflector. Discuss its various applications in measurement of important parameters of fiber optic communication. **(16)**

(OR)

b) i) Draw and explain the elements of a digital data acquisition system. **(9)**

ii) Draw the basic structure of IEEE 488 bus showing interfacing between interactive instruments. **(7)**

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