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JAYA GROUP OF INSTITUTIONS Thiruninravur-602024

6th Semester - B.E.

Model Exam I - JAN 2015

Sub. Title : **MEASUREMENTS AND INSTRUMENTATION**

Date : 29.1.2015

Sub. Code : **EC2351**

Branch : **ECE**

Duration : **180 MINS**

Max. Marks : **100**

Answer all questions

Part A - (10 x 2 = 20)

1. What is meant by measurement?
2. Mention the basic requirements of measurement.
3. Define static characteristics.
4. Name the different essential torques in indicating instruments.
5. Differentiate accuracy from precision.
6. What are the major parts of CRO?
7. What are the uses of analog storage oscilloscopes?
8. What is the disadvantage of sampling oscilloscopes?
9. Mention any two uses of Q-meter.
10. Mention the two types of instruments that are used for measurement of power at RF.

Part B - (5 x 16 = 20)

11. (a)(i) What is the need for standards of measurements? How they are classified? Explain. (8)
- (ii) How the unknown frequency is measured using Wien bridge method? (8)

OR

- (b) (i) What are the different types of errors in measurement? Explain. (8)
- (ii) How do you measure the unknown inductance using Hay bridge? (8)

12. (a) With a neat sketch explain the construction and operation of a permanent magnet moving coil instrument. Also show that the deflection is directly proportional to the current passing through the meter. (16)

OR

- (b) With neat circuit diagrams describe in detail about the following bridge measurement systems.

- (i) Maxwell bridge (8)
- (ii) Anderson bridge. (8)

13. (a)(i) Describe in detail about the moving iron meters with suitable example. (8)
(ii) Explain in detail about the various statistical measurement analysis techniques. (8)

OR

(b) Explain the operation of

1) Q meter.(8)

2) Vector meter.(8)

14. (a) Explain the operation of delayed time base oscilloscope (16)

OR

(b) With a neat diagram explain in detail the operation of Cathode ray oscilloscope. (16)

15. (a) With a neat block diagram explain in detail about the operation of sampling oscilloscope.(16)

OR

(b) (i) Discuss the measurement of DC and AC voltages and currents using an Electronic Multimeter. (8)

(ii) Draw the block diagram of True RMS reading voltmeter and explain its operation. (8)

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