



B.E DEGREE EXAMINATIONS: JUNE 2015

(Regulation 2009)

Fourth Semester

ELECTRONICS AND COMMUNICATION ENGINEERING

ECE109: Measurements and Instrumentation

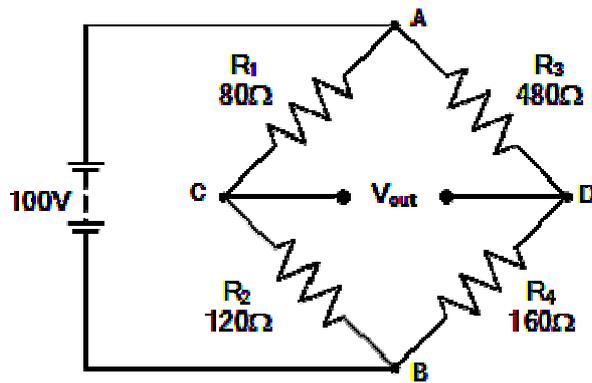
Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Select the suitable one from the following to provided Control torque for PMMC instrument.
 - a) Movement of the aluminum former
 - b) Iron core
 - c) Two phosphor bronze hair springs
 - d) Permanent magnet
2. Identify current through the galvanometer, when the Wheatstone bridge is balanced.
 - a) 0 mA
 - b) 0.5 mA
 - c) 2 mA
 - d) 0.01 mA
3. The quantity that cannot measure directly using CRO is _____
 - a) Frequency
 - b) Current
 - c) Voltage
 - d) Phase angle
4. Select the most suitable one for quality factor.
 - a) $R/\omega L$ in inductance.
 - b) Reciprocal of dissipation factor in capacitance
 - c) $(3 \text{ dB bandwidth}) / (\text{resonance frequency})$
 - d) Inversely proportional to its voltage magnification factor in a resonant circuit
5. Choose the circuit, which is used for generating triangular wave in function generator.
 - a) Differential amplifier
 - b) Comparator
 - c) Differentiator
 - d) Integrator
6. Match the network, that is used to analysis of a complex waveform
 - a) Band pass filter
 - b) Band reject filter
 - c) Low pass filter
 - d) High pass filter
7. Find the most suitable one for digital instrument
 - a) Low precision
 - b) Introduce parallax error



(OR)

- b) (i) Outline the procedure to get balance equation of Wein bridge with necessary expressions and circuit diagram. (8)
(ii) Classify the static characteristics of measuring instrument and define them. (6)

22. a) Summarize the operation of a Sampling oscilloscope with its block diagram and wave form.

(OR)

- b) (i) Apply the electronic multimeter for measurement of DC current and voltage and explain with their circuit diagrams. (8)
(ii) List the important features of an electronic multimeter. (6)

23. a) Explain the operation of a function generator using its block diagram

(OR)

- b) (i) Draw the block diagram of frequency-selective wave analyzer and explain its operation. (7)
(ii) Illustrate the operation of the spectrum analyzer. (7)

24. a) Classify the digital voltmeters and elaborate the operation of ramp type digital voltmeter.

(OR)

- b) Elaborate the operations of time interval and frequency counters with necessary block diagram.

25. a) (i) Summarize the concept of the IEEE 488 bus. (8)
(ii) List the features of the IEEE 488 bus. (6)

(OR)

- b) (i) Discuss the steps to measure fiber optic power and system loss. (8)

- (ii) Draw the structure of optical time domain Reflectometer and explain its (6) operation.
