

4E1225

Roll No.

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B. Tech. IV - Sem. (Main) Exam., May - 2019
ESC Electrical Engineering
4EE3 - 04 Electronic Measurement & Instrumentation
EE, EX

Time: 2 Hours

Maximum Marks: 80

Instructions to Candidates:

Attempt all five questions from Part A, four questions out of six questions from Part B and two questions out of three from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. NIL

2. NIL

PART - A

(Answer should be given up to 25 words only)

[5×2=10]

All questions are compulsory

- Q.1 Explain comparison between Current transformer and Potential transformer.
- Q.2 Explain the term standardization of a potentiometer.
- Q.3 What is the importance of the value of earth's resistance?
- Q.4 Why is it preferable in bridge circuits, that the equations of balance are independent of Frequency? Explain.
- Q.5 Explain why PMMC instruments are the most widely used instruments.

PART - B

(Analytical/Problem solving questions)

[4×10=40]

Attempt any four questions

- Q.1 What are the sources of errors in bridge circuit? What are the precautions and methods used to minimize the errors?
- Q.2 Explain the working principle of single phase energy meter.
- Q.3 Explain classification of Resistance how Wheatstone bridge method is employed to measure Resistance?
- Q.4 Discuss the measurement of power by two Wattmeter method.
- Q.5 Explain construction and operation of slide wire DC potentiometer.
- Q.6 Explain the following AC bridges with phasor diagrams.
- (A) Heaviside Bridge
 - (B) Anderson Bridge

PART - C

(Descriptive/Analytical/Problem Solving/Design Questions)

[2×15=30]

Attempt any two questions

- Q.1 Draw the equivalent circuit and phasor diagram of a current transformer. Also derive the expression for ratio and phase angle errors.
- Q.2 Explain the working of Co-ordinate AC potentiometer. How is it standardized? What are the functions of the transfer instrument and the phase shifting transformer?

Q.3 What are the different problems associated with measurement of low resistance? Explain the principle of working of a Kelvin's double bridge and explain how the effect of contact resistance and resistance of leads is eliminated?
