

4E1221

Roll No. _____

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4E1221

B. Tech. IV - Sem. (Main) Exam., May - 2019
ESC Electronics & Communication Engineering
4EC3 - 06 Electronics Measurement & Instrumentation

Maximum Marks: 120

Time: 3 Hours

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Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and four questions out of five 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)

2. Nil.

PART - A

(Answer should be given up to 25 words only)

[10×2=20]

All questions are compulsory

1. Define Instrument Errors and Loading Error.

2. What is Q-meter?

3. Why the screen of a CRT is coated with phosphor?

4. What is meant by harmonic distortion?

5. Explain isolation probe.

6. State working principle of LVDT.

Q.1 Define the term Piezoelectric

Q.2 What are the characteristics of

Q.3 State basic requirements of Signal Generators.

Q.4 Explain the need of Grounding.

PART - B

(Analytical/Problem solving questions)

[5×8=40]

Attempt any five questions

Q.1 Prove that the algebraic sum of the deviation is equal to zero.

Q.2 What is an electronic galvanometer? Give its merits over ordinary galvanometer.

Q.3 Draw a block diagram of sampling oscilloscope and explain its principle.

Q.4 Explain the working principle of frequency selective wave analyzer with suitable diagram

Q.5 Describe ultrasonic flow meter..

Q.6 Give comparison between RID and Thermocouple.

Q.7 Explain the types of Digital Voltmeters.

PART - C

(Descriptive/Analytical/Problem Solving/Design Questions)

[4×15=60]

Attempt any four questions

Q.1 Draw a block diagram of a CRO and explain the function of each block.

Q.2 Briefly state the theory of piezoelectric transducer and state its applications, advantages & disadvantages.

- Q.3 Describe a Heterodyne wave analyzer with the help of its block diagram. How does a
2 wave analyzer differ from a Harmonic distortion analyzer?
- Q.4 Explain the principle of working of the digital frequency meter, with the suitable
diagram.
- Q.5 The following 10 observations were recorded when measuring a voltage : 41.7, 42.0
6 41.8, 42.0, 41.8, 42.1, 41.9, 42.0, 41.9, 42.5 volt. Find -
- (a) the mean
 - (b) the standard deviation
 - (c) χ the probable error of one reading
 - (d) χ the probable error of mean
 - (e) χ range
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