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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations December-2021

ELECTRONIC MEASUREMENTS AND INSTRUMENTATION

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 60

PART-A

(Answer all the Questions 5 x 2 = 10 Marks)

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|---|---|----|----|
| 1 | a Define sensitivity and resolution. | L1 | 2M |
| | b What is the principle of CRO? | L1 | 2M |
| | c Mention the applications of wave analyser. | L1 | 2M |
| | d Draw the circuit of Kelvin's Double Bridge. | L1 | 2M |
| | e Mention the disadvantages of LVDT. | L1 | 2M |

PART-B

(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

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|---|---|----|----|
| 2 | a Explain different types of errors that occur in measurements. | L2 | 5M |
| | b Explain about Differential type voltmeter. | L2 | 5M |

OR

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|---|---|----|----|
| 3 | a Define sensitivity. Calculate the sensitivity of a 200 μ A meter movement, which is to be used as a dc voltmeter. | L4 | 5M |
| | b With neat sketch, explain thermocouple type RF ammeter. | L2 | 5M |

UNIT-II

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|---|---|----|----|
| 4 | a Draw the block diagram of a dual beam CRO, explain its operation. | L4 | 5M |
| | b State the various applications of an oscilloscope. | L2 | 5M |

OR

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|---|---|----|----|
| 5 | a Explain Two electron beam (dual beam) CRO. | L4 | 5M |
| | b With neat sketch, explain about vertical amplifier. | L6 | 5M |

UNIT-III

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|---|---|----|----|
| 6 | a Explain the working of a standard sweep generator with diagram. | L2 | 5M |
| | b What is sweep generator? Explain in detail. | L2 | 5M |

OR

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| 7 | a What is the function of harmonic distortion analyzer? | L2 | 6M |
| | b With a neat sketch, explain the operation of arbitrary waveform generator. | L2 | 4M |

UNIT-IV

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|---|---|----|----|
| 8 | a Explain how a Maxwell bridge can be used for measuring an unknown inductance. | L2 | 6M |
| | b An A.C bridge as the following constants Arm AB-capacitor of 0.1 μ F in parallel with 2K Ω resistor, Arm AD-resistance of 5K Ω , Arm BC capacitor of 0.25 μ F, Arm CD-unknown capacitor CX and RX in series f-2KHz. Determine the unknown capacitance and dissipation factor. | L6 | 4M |

OR

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|---|--|----|----|
| 9 | a Describe the operation of the Wheatstone bridge and derive the expression for DC resistance. | L2 | 5M |
| | b Describe in detail about EMI & EMC with suitable examples. | L2 | 5M |

UNIT-V

- 10 Explain strain gauge for resistance measurement & its applications. **L2 10M**
- OR**
- 11 a With a neat sketch, explain the operation of piezo-electric transducers in detail. **L2 5M**
- b Explain the operation of Thermocouple. **L2 5M**

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