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

B.Tech III Year I Semester Regular Examinations Feb-2021

ELECTRICAL MEASUREMENTS

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 60

PART-A

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

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|---|---|-------------------------------------------------------------|----|
| 1 | a | The deflection sensitivity of a CRO is given by. | 2M |
| | b | The Medium resistances in the range from. | 2M |
| | c | What is The frequency range of moving iron instruments? | 2M |
| | d | What are the applications of potentiometer? | 2M |
| | e | Which of the following is more accurate? | 2M |
| | | A) Flux meter (B)Ballastic galvano meter (C)A and B (D)None | |

PART-B

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

UNIT-I

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|---|---|------------------------------------------------------------------------|----|
| 2 | a | Derive an expression for the Deflecting torque in MI type instruments. | 5M |
| | b | List the advantages & disadvantages of MI type instruments. | 5M |

OR

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|---|---|------------------------------------------------------------------------------------------------------------------------------|----|
| 3 | a | Define the terms “Indicating instruments”, “Recording instruments” and integrating Instruments”. Give examples of each case. | 5M |
| | b | Explain the construction and working of PMMC type instruments. | 5M |

UNIT-II

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|---|---|-------------------------------------------------------------------------------------------------------------------------|----|
| 4 | a | Draw the circuit of a Kelvin’s double bridge used for measurement of low resistances. Derive the condition for balance. | 5M |
| | b | Explain classification of resistances. | 5M |

OR

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|---|---|---------------------------------------------------------------|----|
| 5 | a | Explain the features of De-Sauty’s Bridge with a neat sketch. | 5M |
| | b | List the advantages and disadvantages of Maxwell’s Bridge. | 5M |

UNIT-III

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|---|---|------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 6 | a | Discuss the errors of single-phase energy meter. | 5M |
| | b | A 50A, 230 V meter on full load test makes 61 revolutions in 37 seconds. If the normal disc speed is 520 revolutions per Kwh , find the percentage error . | 5M |

OR

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|---|-------------------------------------------------------------------------------------------------------|-----|
| 7 | Explain with a neat sketch the construction and working of a single-phase Dynamometer type Wattmeter. | 10M |
|---|-------------------------------------------------------------------------------------------------------|-----|

UNIT-IV

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|---|---|---------------------------------------------------------------|----|
| 8 | a | With neat figure, explain the working of an AC Potentiometer. | 6M |
| | b | Discuss the significance of standardization. | 4M |

OR

- 9 a Explain the applications of DC potentiometers. 5M
b List the advantages of potentiometers 5M

UNIT-V

- 10 a Prove that in a Ballistic Galvanometer, the charge is proportional to first swing of the moving coil. 5M
b compare flux meter and Ballistic Galvanometer 5M

OR

- 11 a List the advantages & applications of C R O. 5M
b Draw a neat figure and explain the working of a C R O. 5M

END