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

B.Tech I Year II Semester Supplementary Examinations March-2021

BASIC ELECTRICAL ENGINEERING

(Common to ECE, CSE, CSIT)

Time: 3 hours

Max. Marks: 60

PART-A

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

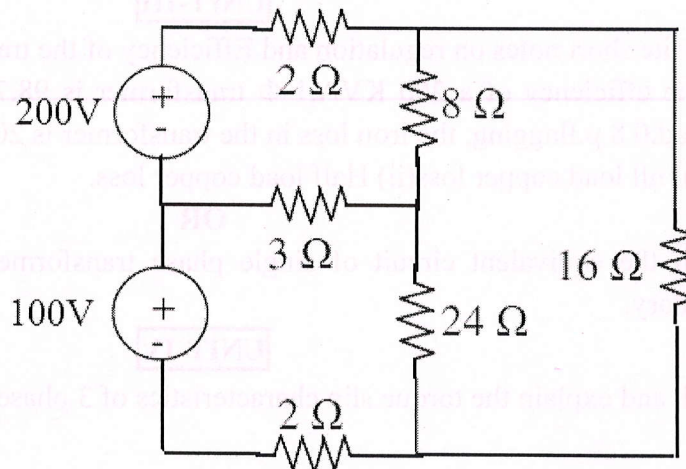
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|---|---|---------------------------------------|----|
| 1 | a | State and explain Kirchoff's law | 2M |
| | b | Define form factor and peak factor | 2M |
| | c | Why Transformer rating will be in kVA | 2M |
| | d | State Fleming's left hand rule | 2M |
| | e | Define switch gear | 2M |

PART-B

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

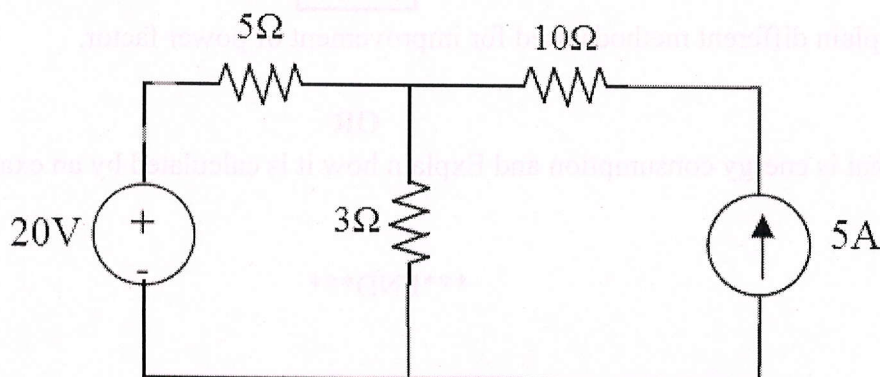
UNIT-I

- | | | | |
|---|---|--|----|
| 2 | a | State and explain Norton's theorem. | 5M |
| | b | Determine the mesh currents for the circuit shown below. | 5M |



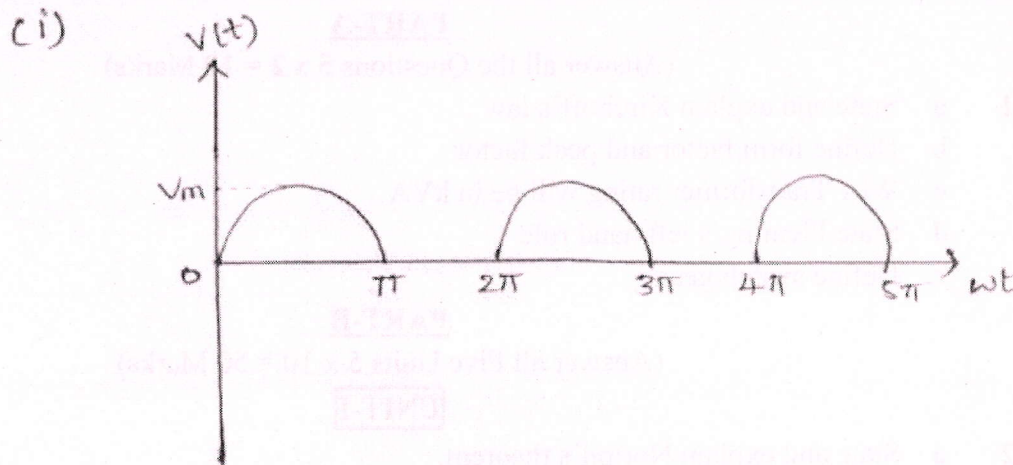
OR

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|---|--|---------|
| 3 | State and Explain the Super position theorem. And by using superposition theorem find the current flowing through the 3 Ω resistors. | 10
M |
|---|--|---------|



UNIT-II

- 4 Derive an expression for the current and impedance for a series RL and RC circuit excited by a sinusoidally alternating voltage. Draw the phasor diagrams. 10 M
- OR**
- 5 a Explain resonance for series RLC circuit and derive the equation for resonant frequency. 5M
- b Find the rms value for the following waveforms. 5M

**UNIT-III**

- 6 a Write short notes on regulation and Efficiency of the transformer. 5M
- b The efficiency of a 200 KVA, 1- Φ transformer is 98.7% when operating at full-load, 0.8 p.f. lagging, the iron loss in the transformer is 200 W. Calculate:
(i) Full load copper loss (ii) Half load copper loss. 5M
- OR**
- 7 Obtain the equivalent circuit of single phase transformer referred to primary and secondary. 10 M

UNIT-IV

- 8 Sketch and explain the torque slip characteristics of 3 phase induction motor. 10 M
- OR**
- 9 Explain the various method of speed control of separately excited DC motor. 10 M

UNIT-V

- 10 Explain different methods used for improvement of power factor. 10 M
- OR**
- 11 What is energy consumption and Explain how it is calculated by an example? 10 M

END