**R18**

**Reg. No:**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**
(AUTONOMOUS)
**B Tech I Year II Semester Supplementary Examinations October-2020**
**BASIC ELECTRICAL ENGINEERING**
(Common to ECE, CSE & CSIT)

Time: 3 hours                                                                                          Max. Marks: 60
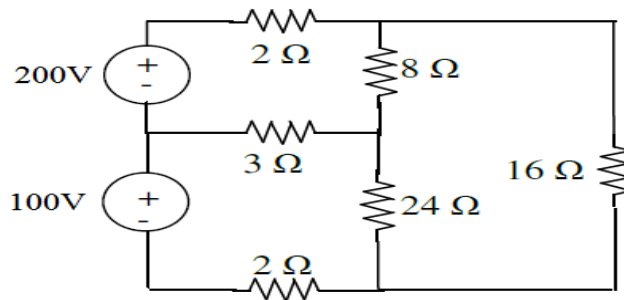
## PART-A
(Answer all the Questions **5 x 2 = 10** Marks)

| | | | |
|---|---|---|---|
| 1 | a | What is Circuit and Network? | 2M |
| | b | Draw Star and Delta Connections of Three Phase circuit. | 2M |
| | c | Write Transformation ratio. | 2M |
| | d | Define Torque and slip. | 2M |
| | e | Define Fuse and Circuit Breaker. | 2M |

## PART-B
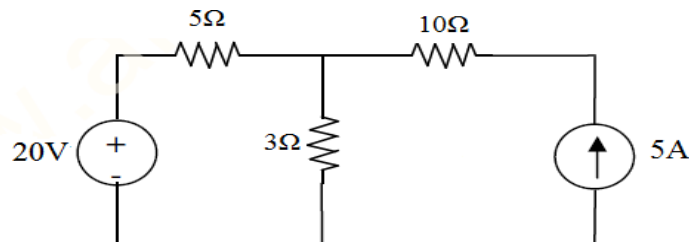(Answer all Five Units 5 x 10 = 50 Marks)

### UNIT-I

2   a   Determine the mesh currents for the circuit shown below.                                5M



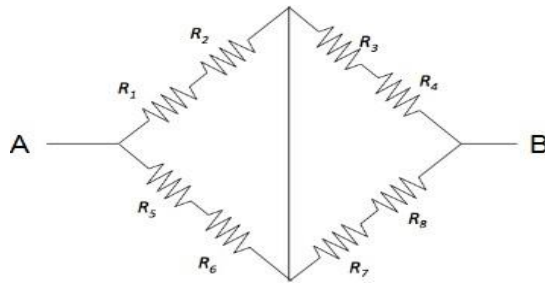    b   Derive the time response of RC circuit.                                                5M

**OR**

3   a   State and Explain the Super position theorem. And By using superposition              5M
        theorem find the current flowing through the 3 ohm resister.



5M

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**b** Find the equivalent resistance between AB for the circuit shown below.

$R_1=4\Omega$, $R_2=2\Omega$, $R_3=8\Omega$, $R_4=1\Omega$, $R_5=12\Omega$, $R_6=3\Omega$, $R_7=10\Omega$ & $R_8=5\Omega$



## UNIT-II

| | | | |
|---|---|---|---|
| **4** | **a** | Explain the phasor relation for R, L & C elements. | **5M** |
| | **b** | A series RLC circuit of R=50 ohms, L= j25 ohms. Determine the value of capacitive reactance and impedance at resonance. | **5M** |

**OR**

| | | | |
|---|---|---|---|
| **5** | **a** | Derive an expression for the voltage and impedance for a series RLC circuit excited by a sinusoidally alternating voltage. | **5M** |
| | **b** | A 120V AC circuit contain 10 Ω resistance and 30 Ω inductive reactance in series. What is average power of this circuit? | **5M** |

## UNIT-III

| | | | |
|---|---|---|---|
| **6** | **a** | Explain BH characteristics. | **5M** |
| | **b** | Explain about magnetic materials. | **5M** |

**OR**

| | | | |
|---|---|---|---|
| **7** | **a** | What are three phase transformer connections and explain it? | **6M** |
| | **b** | Explain the various losses in a transformer. | **4M** |

## UNIT-IV

| | | | |
|---|---|---|---|
| **8** | **a** | What is rotating magnetic field? Explain in brief. | **6M** |
| | **b** | Explain the construction of DC motor. | **4M** |

**OR**

| | | | |
|---|---|---|---|
| **9** | **a** | Explain the working principle of single-phase induction motor. | **5M** |
| | **b** | Sketch and explain the torque speed characteristics of DC motor. | **5M** |

## UNIT-V

| | | | |
|---|---|---|---|
| **10** | **a** | Explain different types of wiring system. | **5M** |
| | **b** | Explain the characteristics of batteries. | **5M** |

**OR**

| | | | |
|---|---|---|---|
| **11** | **a** | Explain briefly about earthing and how it plays an important role in installation. | **5M** |
| | **b** | What is energy consumption and Explain how it is calculated by an example? | **5M** |

***END***