| H.T No | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|

**Sreenidhi Institute of Science and Technology**
(An Autonomous Institution)

**Regulations: A22**

**Code No:9AC48** **Date: 09-August-2024 (FN)**

**B.Tech I-Year II- Semester External Examination, August-2024 (Regular & Supplementary)**
**BASIC ELECTRICAL AND ELECTRONICS ENGINEERING (CSE,IT,CS,AIML,DS,IOT)**

**Time: 3 Hours** **Max.Marks:60**

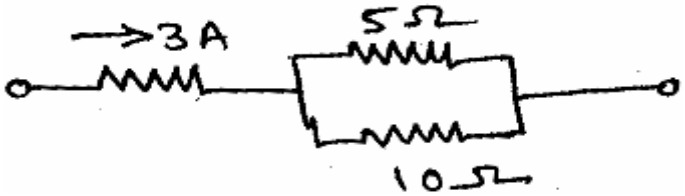
***Note:*** *a) No additional answer sheets will be provided.*
*b) All sub-parts of a question must be answered at one place only, otherwise it will not be valued.*
*c) Missing data can be assumed suitably.*

**Bloom's Cognitive Levels of Learning (BCLL)**

| | | | | | |
|---|---|---|---|---|---|
| Remember | L1 | Apply | L3 | Evaluate | L5 |
| Understand | L2 | Analyze | L4 | Create | L6 |

**Part - A** **Max.Marks: 6x2=12**

**ANSWER ALL QUESTIONS, EACH QUESTION CARRIES 2 MARKS.**

| | | BCLL | CO(s) | Marks |
|---|---|---|---|---|
| 1 | What is the current in 5 ohm Resistor?   | L1 | CO1 | [2M] |
| 2 | Write is the relationship between line phase values Voltage and current in delta connected three-phase, balanced system. | L1 | CO2 | [2M] |
| 3 | List the main parts of three phase induction motor? | L1 | CO3 | [2M] |
| 4 | Draw the V-I characteristics of PN Junction Diode . | L2 | CO4 | [2M] |
| 5 | List out the uses of BJT. | L2 | CO5 | [2M] |
| 6 | Write 2's complement of $(1000)_2$ | L1 | CO6 | [2M] |

**Part – B** **Max.Marks: 6x8=48**

**ANSWER ALL QUESTIONS. EACH QUESTION CARRIES 8 MARKS.**

| | | BCLL | CO(s) | Marks |
|---|---|---|---|---|
| 7. | State Superposition Theorem and By using Superposition Theorem determine value of current (I) through 6 ohms resistor in the given circuit shown in Figure-1. | L3 | CO1 | [8M] |

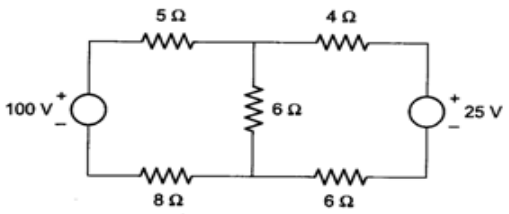



Figure-1.

OR

| | | | | |
|---|---|---|---|---|
| 8 | Explain basic construction and principle of operation of DC generator in detail with its applications. | L2 | CO1 | [8M] |
| 9. | i)Define the terms : a) cycle , b) Time period c) form factor d) Peak factor<br>ii)An alternating current is given by i = 20 sin 600t Amp. Calculate the frequency, peak value of current and the time taken t for the current to reach value of 10A. | L2<br>L3 | CO2 | [8M] |

OR

| | | | | |
|---|---|---|---|---|
| 10 | An impedance $Z_1=(2.4 + j3.2)$ ohm is in parallel with another impedance $Z_2=(3-j4)$ ohm .The combination is given a supply of 200V. Calculate the total impedance, current supplied by source, current through individual branches, power factor and power consumed in the circuit. | L3 | CO2 | [8M] |

| | | | | |
|---|---|---|---|---|
| 11 | i)Explain the concept of Faraday's laws.<br>ii)Explain the principle of operation of three phase induction motor. | L2<br>L2 | CO3 | [8M] |
| | OR | | | |
| 12 | i)List out the classification of measuring instruments.<br>ii)Compare Moving coil Instruments and moving Iron Instruments in any four aspects. | L2<br>L2 | CO3 | [8M] |
| 13 | i)Describe the operation of full wave rectifier with neat sketch and its wave forms.<br>(ii) Explain the operation of PN junction diode in forward bias and reverse bias mode. | L2<br>L2 | CO4 | [8M] |
| | OR | | | |
| 14 | i)Describe the VI-characteristics of Zener diode under reverse biased mode.<br>ii)Write short notes on clippers and clampers | L2<br>L2 | CO4 | [8M] |
| 15 | Explain the input and output characteristics of the transistor in Common base configuration with diagrams. | L3 | CO5 | [8M] |
| | OR | | | |
| 16 | Explain the construction and working operation of n channel JFET. | L2 | CO5 | [8M] |
| 17 | i)Convert the following numbers :<br>(a) $(FE7)_{16} = (\ )_{10}$ (b) $(753)_{10} = (\ )_{8}$<br>ii)Describe about weighted and unweighted codes. | L3<br>L2 | CO6 | [8M] |
| | OR | | | |
| 18 | Draw the different logic gates with truth tables. | L2 | CO6 | [8M] |

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