**20EI205**

**Hall Ticket Number:**

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| **I/IV B.Tech (Regular DEGREE EXAMINATION** | | | |
| **October, 2021** | **Computer Science Engineering** | | |
| **Second Semester** | **Basic Electronics and Electrical Engineering** | | |
| **Time:** Three Hours | | **Maximum: 7**0 Marks | |
| *Answer* ***ALL*** *Questions from* ***PART-A.*** | | | (1X10 = 10 Marks) |
| *Answer* ***ANY FOUR*** *questions from* ***PART-B.*** | | | (4X10=40 Marks) |

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| 1. | a) | What is the value of resistance under short circuit case and open circuit case? | CO1 |  |
|  | b) | Represent the equivalent circuit for Practical voltage & practical current source. | CO1 |  |
|  | c) | Write the general expression for a sinusoidal waveform | CO1 |  |
|  | d) | What are the advantages of 3-Ø system over 1-Ø system? | CO2 |  |
|  | e) | Draw the B-H Characteristics | CO2 |  |
|  | f) | State Faradays Laws of Electro Magnetic Induction. | CO2 |  |
|  | g) | Define Slip. | CO3 |  |
|  | h) | What is the energy band gap for Silicon Material | CO3 |  |
|  | i) | What is current buffer circuit? | CO4 |  |
|  | j) | What is the condition for an Op-Amp for acting as good Differentiator | CO4 |  |
|  | k) |  |  |  |
|  | l) |  |  |  |
|  | m) |  |  |  |
|  | n) |  |  |  |
| **PART-B** | | | | |
| **UNIT I** | | | | |
| 2. | a) | For the circuit in Fig. find the branch currents I1, I2, and I3 using mesh analysis. | CO1 | 7M |
|  | b) | Determine the RMS and average value of the waveform shown in fig. | CO1 | 7M |
|  |  | **(OR)** |  |  |
| 3. | a) | Find the input impedance of the circuit in Fig. Assume that the circuit operates at ω = 50 rad/s. | CO1 | 7M |
|  | b) | Three equal Star connected Inductors take 8KW at a power factor 0.8 when connected across a 460V, 3-Ø, and 3-wire supply. Find the circuit constants of the load per phase (Rph, Xph). | CO1 | 7M |
|  |  | **UNIT II** |  |  |
| 4. | a) | At a Glance compare Dia, Para, and Ferro Magnetic Materials. | CO2 | 7M |
|  | b) | Derive the EMF Equation of transformer and draw the Phasor diagram under lagging loads. | CO2 | 7M |
|  |  | **(OR)** |  |  |
| 5. | a) | Prove that Rotating Magnetic Field is produced when 3-Ø supply is fed to Stator of 3-Ø Induction Motor. | CO2 | 7M |
|  | b) | Explain why 1-Ø induction motor is not self-starting. | CO2 | 7M |
|  |  | **UNIT III** |  |  |
| 6. | a) | Describe diode half wave rectification and derive the load voltage and current equations. | CO3 | 7M |
|  | b) | Explain the operation of Zener diode as voltage regulator. | CO3 | 7M |
|  |  | **(OR)** |  |  |
| 7. | a) | Explain full wave Bridge rectifier and derive the load voltage and current equations. | CO3 | 7M |
|  | b) | Draw and explain the working of negative clamper circuit. | CO3 | 7M |
|  |  | **UNIT IV** |  |  |
| 8. | a) | Compare and contrast JFET & MOSFET. | CO4 | 7M |
|  | b) | How the transistors act as a switch? | CO4 | 7M |
|  |  | **(OR)** |  |  |
| 9. | a) | List out DC Characteristics of OP-AMP. | CO4 | 7M |
|  | b) | Derive the expression for Inverting gain using and Op-Amp. | CO4 | 7M |

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