**20CS203**

**Hall Ticket Number:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **I/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| **September, 2021** | **Computer Science Engineering** | | |
| **Second Semester** | **Basic Electronics and Electrical Engineering** | | |
| **Time:** Three Hours | | **Maximum: 7**0 Marks | |
| Answer Question No. 1 compulsory. | | | (1X14 = 14 Marks) |
| Answer ONE Question from each unit. | | | (4X14=56 Marks) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1. | a) | In a 3 phase Delta connected load the phase current is 3A. Calculate line current. | | CO1 |  |
|  | b) | What is the phase angle between V & I of a pure inductor connected to single phase AC Source. | | CO1 |  |
|  | c) | Is AC Voltage is Vector or Scalar | | CO1 |  |
|  | d) | State superposition theorem. | | CO1 |  |
|  | e) | Define slip of induction motor. | | CO2 |  |
|  | f) | Why transformer core is laminated? | | CO2 |  |
|  | g) | Write down the importance of back emf in a DC machine. | | CO2 |  |
|  | h) | Write the advantages of CE over CB and CC. | | CO3 |  |
|  | i) | Draw the symbol for N- Channel MOSFET. | | CO3 |  |
|  | j) | Draw the symbol of PNP transistor. | | CO3 |  |
|  | k) | What is clamper? | | CO3 |  |
|  | l) | What is pinch of voltage? | | CO4 |  |
|  | m) | Draw the circuit for OP-AMP based voltage follower circuit | | CO4 |  |
|  | n) | What is CMRR? | | CO4 |  |
| **UNIT I** | | | | | |
| 2. | a) | Using Thevenin’s theorem, find the equivalent circuit to the left of the terminals in the circuit in Fig. Then find i. | C:\Users\exam\Desktop\1234.png | CO1 | 7M |
|  | b) | Compute the average and RMS values of a fundamental sinusoidal voltage wave. | | CO1 | 7M |
|  |  | **(OR)** | |  |  |
| 3. | a) | Draw the Impedance triangle and derive the expression for Active Power, Reactive Power, and Complex Power and power factor. | | CO1 | 7M |
|  | b) | When AC voltage is applied across series RC Circuit prove that current is leading by 900 w.r.t applied voltage. | | CO1 | 7M |
|  |  | **UNIT II** | |  |  |
| 4. | a) | Explain the construction and working principle of DC Motor. | | CO2 | 7M |
|  | b) | Explain different types of losses in Transformers. | | CO2 | 7M |
|  |  | **(OR)** | |  |  |
| 5. | a) | With necessary equations explain Torque –Slip Characteristics of 3-Ø induction Motor. | | CO2 | 7M |
|  | b) | Explain the working principle of DOL Starter | | CO2 | 7M |
|  |  | **UNIT III** | |  |  |
| 6. | a) | Discuss briefly about the regulating characteristics of a zener diode | | CO3 | 7M |
|  | b) | Explain the DC load line analysis of PN diode in detail. | | CO3 | 7M |
|  |  | **(OR)** | |  |  |
| 7. | a) | Draw the circuit for half wave rectifier and also derive an expression for ripple factor | | CO3 | 7M |
|  | b) | Write a short note on Common Emitter configuration. | | CO3 | 7M |
|  |  | **UNIT IV** | |  |  |
| 8. | a) | Explain the Drain characteristics of JFET with suitable diagrams. | | CO4 | 7M |
|  | b) | Write construction and operation of E-Mosfet. | | CO4 | 7M |
|  |  | **(OR)** | |  |  |
| 9. | a) | Draw and derive an expression for output voltage of 3 input summing amplifier using OP-AMP. | | CO4 | 7M |
|  | b) | Discuss Briefly about the Integrator using Op-Amp. | | CO4 | 7M |

****