**20EE302**

**Hall Ticket Number:**

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| **II/IV B.Tech (Regular) DEGREE EXAMINATION** | | | | |
| **March, 2022** | **Electrical and Electronics Engineering** | | | |
| **Third Semester** | **Network Analysis** | | | |
| **Time:** Three Hours | | **Maximum:** 70 Marks | | |
| *Answer Question No.1 compulsorily.* | | | (1X14 = 14 Marks) | |
| *Answer ONE question from each unit.* | | | (4X14=56 Marks) | |
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| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | 1. | a) | | What is first order circuit? | CO1 |  | |  | b) | | Draw any second order circuit. | CO1 |  | |  | c) | | What is meant by forced response? | CO1 |  | |  | d) | | Write any two advantages of 3 phase system | CO2 |  | |  | e) | | Give the representation of three phase balanced voltages in polar form | CO2 |  | |  | f) | | Write the formula for Total Power, True Power, Reactive power with units | CO2 |  | |  | g) | | Define Port | CO3 |  | |  | h) | | Give the relation between voltage and current using admittance parameters | CO3 |  | |  | i) | | Write the zeros in (S+4)/(S+2)(S+3) | CO3 |  | |  | j) | | Draw any lattice network | CO3 |  | |  | k) | | Define self-inductance | CO4 |  | |  | l) | | Draw high pass filter circuit | CO4 |  | |  | m) | | Write formula for coefficient of coupling | CO4 |  | |  | n) | | Define low pass filter | CO4 |  | | **Unit - I** | | | | | | | 2. | a) | Find DC transient response of RC circuit. Assume initial conditions of capacitor are zero.  Transient Response of RC Circuit | | CO1 | 7M | |  | b) | Find the inverse Laplace transform of 5/(S2-6S-6) | | CO1 | 7M | | **(OR)** | | | | | | | 3. | a) | Find DC transient response of RL circuit. Assume initial conditions of inductor are zero.  https://www.eeeguide.com/wp-content/uploads/2020/01/Transient-Response-of-RL-Circuit.jpg | | CO1 | 7M | |  | b) | Find the convolution integral of f(t) = e-2t\*e3t | | CO1 | 7M | | **Unit - II** | | | | | | | 4. | a) | Express the relation between line and phase value of voltage, line and phase value of current in three phase star connected circuit with the help of phasor diagrams. | | CO2 | 7M | |  | b) | A symmetrical three phase, four wire star connected source of 415V, RYB system supplies a star connected load. The impedance in each branch is Z = 20∠300 Ω. Find the line currents and total power. | | CO2 | 7M | | **P.T.O.**  **20EE302** | | | | | | | **(OR)** | | | | | | | 5. | a) | Explain two wattmeter measurement of power with neat circuit and phasor diagrams | | CO2 | 7M | |  | b) | A symmetrical three phase, four wire star connected source of 415V, RYB system supplies a star connected unbalanced load. The impedance in each phase is ZR = 20∠300 Ω. ZY = 20∠-300 Ω. ZB = 20 Ω. - Find the line currents | | CO2 | 7M | | **Unit - III** | | | | | | | 6. | a) | Find the impedance parameters of the given network. ZA = 10 Ω . ZB = 20 Ω ZC = 30 Ω | | CO3 | 7M | |  | b) | A network function is given by  Explain time domain behavior of the given function from pole zero plot. | | CO3 | 7M | | **(OR)** | | | | | | | 7. | a) | Find hybrid parameters for the given network | | CO3 | 7M | |  | b) | Derive the relation for expressing impedance parameters in term of admittance parameters | | CO3 | 7M | | **Unit - IV** | | | | | | | 8. | a) | Explain series connection of two coupled coils with an example. | | CO4 | 7M | |  | b) | Design an RC low pass filter for the HF band 3-30 MHz . Take the value of R = 5 Ω . Draw the circuit and plot the frequency response. | | CO4 | 7M | | **(OR)** | | | | | | | 9. | a) | Define low pass, high pass, band pass and band reject filters | | CO4 | 7M | |  | b) | Derive expression for high pass filter with an example | | CO4 | 7M | | | | |
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