Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec – 2017**

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| **Code :** | **14EE2001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ELECTRIC CIRCUITS AND NETWORKS** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | In the network shown below, find the current delivered by the battery. | CO1 | 15 |
|  | b. | Find out the equivalent resistance between terminals A and B in the Figure. | CO1 | 5 |
| (OR) | | | | |
| 2. | a. | Determine the mesh currents I1 and I2 for the given circuit shown below | CO1 | 15 |
|  | b. | Determine the current through R3 by node analysis. | CO1 | 5 |
| 3. | a. | For the circuit shown, use superposition theorem to compute current I | CO1 | 15 |
|  | b. | Find the value of Rout such that maximum power is delivered to it. | CO1 | 5 |
| (OR) | | | | |
| 4. | a. | Using Nortons theorem, find the current through 6ῼ resistance shown in figure | CO1 | 15 |
| b. | Modify the given network into Millman’s equivalent network. | CO1 | 5 |
| 5. | a. | A balanced star connected load of (8+j6)Ω/phase is supplied with a balanced 3-φ, 400V supply. Find the i. phase current ii. line current iii. Real power iv. reactive power v. apparent power. | CO2 | 15 |
| b. | In an ideal transformer, K=0.8, the mutual inductance= 10 H, No.of primary and Secondary turns are 50 and 200.obtain the value of primary current to produce 0.5 wb flux to link with the secondary coil. | CO2 | 5 |
| (OR) | | | | |
| 6. | a. | Derive an expression to find the output current, voltage and amplification factor of a single tuned coupled circuit | CO2 | 12 |
|  | b. | Calculate the total inductance of three coupled circuit shown in the figure. | CO2 | 8 |
| 7. |  | In the figure, the switch K is closed at t = 0.Assuming no initial current through inductor, find current at t=0.3sec. Find voltage across R and L | CO2 | 20 |
| (OR) | | | | |
| 8. |  | Derive the transient response of an RC circuit when it is switched to a unit step voltage source at time t=0. Assume that the initial charge across the capacitor is zero | CO2 | 20 |
|  | | **Compulsory**: |  |  |
| 9. | a. | For the given two port network find the impedance parameters. | CO3 | 10 |
|  | b. | Design a constant K low pass filter having a cut off frequency of 2 kHz to operate with a terminated load resistance of 500 ohm. | CO3 | 10 |

ALL THE BEST