nepal college of information technology

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| Level: Bachelor | | Semester – Fall | Year : 2014 | |
| Programme: BE IT morning/IT Day/computer /ELX | | | Full Marks: 70 | |
| Course: Basic Electrical Engineering | | | Time : 2 hrs. | |
| *Candidates are required to give their answers in their own words as far as practicable.* | | | |
| *The figures in the margin indicate full marks.* | | | |
| Attempt all the questions. | | | |
|  | 1. Write the nodal voltage equations for the given circuit and find the current passing through 5Ώ resistor.      1. State and prove the maximum power transfer theorem and also show that maximum power transferred to the load is PLmax = ; where symbols have their usual meanings. | | | | | 8  7 |
|  | 1. Determine the current passing through 15resistor connected across a-b terminal in the circuit using Norton's theorem.      1. Use Superposition theorem to determine the current through the 4Ω resistor in figure shown below. | | | | | 8  7 |
|  | 1. Two impedance of (5+j10) and (10-j5) are connected in series across a 200 V, 50 Hz supply. Find current, active power, apparent power and reactive power and power factor. Also draw a phasor diagram. 2. What are the dependent and independent sources ?Explain | | | | | 8  7 |
|  | 1. A 50 resistor, 5 mH inductor and 15 μF capacitor are connected in series across a 1 V source. Find resonant frequency, quality factor, bandwidth, current and voltage across capacitor at resonance.   OR   1. State and explain KVL. Find RAB by using Delta to Star conversion technique.   A  3Ω  5Ω  5Ω  5Ω  B  5Ω  3Ω  7Ω    b)Find the Thevenin’s equivalent circuit for the following figure,  RL  and find the maximum power transferred to the load resistance.    6Ω  2Ω  5Ω | | | | | 7 |
|  | Write short notes on (Any Two)   1. Super position theorem 2. Voltage divider rule/current divider rule 3. Generation, transmission of electricity | | | | | 10 |