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

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **14EE1001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **BASIC ELECTRICAL ENGINEERING** | **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. | Using Kirchhoff’s laws, find the current in various resistors in the circuit shown below. | CO1 | 15 |
| b. | Define Ohm's law and mention its limitations. | CO1 | 5 |
| (OR) | | | | |
| 2. | a. | Determine the equivalent resistance RT by using star – delta transformation and find the Total current IT delivered by the voltage source in the circuit given below. | CO1 | 10 |
| b. | State the Kirchhoff’s Current and Voltage Laws. | CO1 | 5 |
| c. | Determine the current through **18Ω** resistor. | CO1 | 5 |
|  |  |  |  |  |
| 3. | a. | Compare Magnetic and Electric Circuits. | CO1 | 10 |
| b. | State the Faraday’s Law of Electromagnetic Induction with necessary equations. | CO1 | 5 |
| c. | Find the co-efficient of coupling (K), if the values of Mutual and self inductances are M = L1 = L2 = 2Henry, respectively. | CO1 | 5 |
| (OR) | | | | |
| 4. | a. | A coil has 2000 turns and it carries a current of 10A. If the length of the magnetic path is 20 metres and flux is 0.5 wb, find magnetic field intensity (H) and self inductance (L) | CO1 | 5 |
|  | b. | Explain the self inductance with necessary equations. Also derive the relationship between self-induced emf and self inductance. | CO1 | 15 |
|  |  |  |  |  |
| 5. | a. | Derive the expressions for rms value, average value, form factor and peak factor of an alternating sinusoidal voltage quantity. | CO2 | 15 |
| b. | Compare overhead and underground distribution system. | CO2 | 5 |
| (OR) | | | | |
| 6. |  | With a neat diagram explain the various components and working of a hydroelectric power plant. Also mention its advantages. | CO2 | 20 |
|  |  |  |  |  |
| 7. | a. | Elucidate the working of three phase induction motor with neat diagram. | CO2 | 10 |
| b. | List out the applications of Single Phase Induction Motor. | CO2 | 5 |
| c. | Classify DC Motor based on its field winding. | CO2 | 5 |
| (OR) | | | | |
| 8. | a. | Determine the induced emf in the armature, for a 4 pole wave wound DC Generator which has 500 conductors. The flux / pole is 10 milliwebers and the rotating speed is 1000rpm. | CO2 | 5 |
| b. | Illustrate the working principle and construction of a DC Generator with necessary diagrams. | CO2 | 15 |
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|  | | **Compulsory**: |  |  |
| 9. | a. | Explain the operation of fluorescent lamp wiring with neat diagram. | CO3 | 10 |
| b. | Describe the working of MI Instruments with neat diagram. | CO3 | 10 |