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



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **12EE101 / 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. | State Ohm’s Law and its limitations. | CO1 | 10 |
| b. | A network of 9 resistances (in ohms) is connected as shown in the figure. Calculate the resistance between A and C using star – delta transformation. | CO1 | 10 |
| **(OR)** | | | | |
| 2. | a. | State the Kirchhoff’s Laws and illustrate the use of Kirchhoff’s Laws in a circuit. | CO1 | 15 |
| b. | Two resistors 12 Ω and 6 Ω are connected in parallel and this combination is connected in series with a 6.25 Ω resistance and a battery as shown in the figure. Determine the emf of the battery if potential difference across 6 ohms resistance is 6 volts. | CO1 | 5 |
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| 3. |  | Derive the expressions for r.m.s average, form factor and peak factor values of a sinusoidal alternating current quantity. | CO1 | 20 |
| **(OR)** | | | | |
| 4. | a. | Explain the principle and operation of three phase induction motor. | CO1 | 15 |
| b. | List out the applications of synchronous motor. | CO1 | 5 |
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| 5. |  | With neat block diagrams, explain the operation of thermal and nuclear power stations. | CO2 | 20 |
| **(OR)** | | | | |
| 6. | a. | Compare the magnetic circuits with electric circuits. | CO2 | 10 |
| b. | State Faraday’s Law and Lenz’s Law. | CO2 | 5 |
| c. | Categorize the Indian hydro-power plants and its capacity. | CO2 | 5 |
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| 7. | a. | Elaborate the working principle of a fluorescent tube with neat diagram. | CO3 | 10 |
| b. | Discuss the concept of Resistance– Start and Capacitor – Start single phase induction motor with a neat sketch. | CO3 | 10 |
| **(OR)** | | | | |
| 8. | a. | Draw the single – line diagram of a power system. | CO3 | 10 |
| b. | Derive the expression of coupling co-efficient between the two magnetically coupled circuits. | CO3 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | With a neat sketch, explain the types of controlling torques. | CO3 | 10 |
| b. | Briefly discuss the following:  i) Moving iron attraction type instrument.  ii) Induction type Energy Meter. | CO3 | 10 |