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



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

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| **Code :** | **18EE1001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **BASIC ELECTRICAL ENGINEERING** | **Max. Marks :** | **100** |

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| **Q. No.** | **Questions** | **Course Outcome** | **Marks** |
| **PART – A (10X1=10 MARKS)** | | | |
| 1. | In inductor, current lags the voltage – True or False. | CO1 | 1 |
| 2. | \_\_\_\_\_\_\_\_\_\_ is the most elementary form of a loop and cannot be further divided into other loops. | CO1 | 1 |
| 3. | An alternating sinusoidal current quantity is given by \_\_\_\_\_\_\_\_\_\_. | CO2 | 1 |
| 4. | Name the two main types of transformers. | CO2 | 1 |
| 5. | MMF is the product of \_\_\_\_\_\_\_\_\_\_ flowing through a coil of N turns. | CO3 | 1 |
| 6. | \_\_\_\_\_\_\_\_\_\_ losses can be minimized using laminations. | CO4 | 1 |
| 7. | The APK in Android stands for \_\_\_\_\_\_\_\_\_\_\_\_. | CO5 | 1 |
| 8. | \_\_\_\_\_\_\_\_\_\_\_\_ is a collection of views and other child views in Android. | CO5 | 1 |
| 9. | Fuse should be connected in \_\_\_\_\_\_\_\_\_\_\_\_ line. | CO6 | 1 |
| 10. | Earth electrode resistance should be below \_\_\_\_\_\_\_\_ ohms. | CO6 | 1 |

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| **PART – B (6 X 3= 18 MARKS)** | | | |
| 11. | Obtain an equivalent voltage source circuit for the following circuit. | CO1 | 3 |
| 12. | Three Phase is Preferred over Single Phase - Justify. | CO2 | 3 |
| 13. | State the Faraday’s Law of Electromagnetic Induction. |  | 3 |
| 14. | A 6 pole lap wound DC Generator has 1000 conductors. The flux / pole is 10 milliwebers. Determine the induced emf in the armature, if it is rotating at a speed of 600 rpm. | CO4 | 3 |
| 15. | Write short notes on UI widgets. | CO5 | 3 |
| 16. | Sketch a stair-case wiring circuit with operating table. | CO6 | 3 |

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| **PART – C (6 X 12 = 72 MARKS)**  **(Answer any five Questions from Q.no 17 to 23. Q.No 24 is a Compulsory Question)** | | | | |
| 17. |  | Using Kirchhoff’s laws, find the current in various resistors in the circuit shown below: | CO1 | 12 |
| 18. | a. | From the sinusoidal voltage equation given, find Vavg, Vrms, form factor, peak factor, frequency, time period; v = . | CO2 | 10 |
| b. | Sketch the positive sequence phasor of a 3-phase system. | CO2 | 2 |
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| 19. | a. | Compare magnetic and electric circuits. | CO3 | 8 |
| b. | A coil has 500 turns and it carries a current of 10A. If the flux is 0.5 wb, find the mmf and self inductance of the coil. | CO3 | 4 |
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| 20. | a. | Describe the working principle of transformer. | CO3 | 8 |
| b. | Explain the transformer efficiency and regulation. | CO3 | 4 |
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| 21. | a. | Determine the armature torque established by the armature of a 4 pole DC Motor having 500 conductors, two paths in parallel, when total armature current is 15A. The flux is 5 m wb. | CO4 | 3 |
| b. | Compare Stepper and Servo Motors. | CO4 | 6 |
| c. | List out the applications of Single Phase Induction Motor. | CO4 | 3 |
|  |  |  |  |  |
| 22. |  | With neat diagrams explain the construction and working principle of DC Generator. | CO4 | 12 |
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| 23. |  | Draw the architecture of Android and describe the functions of each block. | CO5 | 12 |
|  | **Compulsory:** | | | |
| 24. | a. | Calculate the energy consumed per month by the following electrical appliances.   |  |  |  |  | | --- | --- | --- | --- | | **Appliance** | **Power Rating** | **No. of item** | **Hours of**  **Operation / day** | | CFL | 20W | 5 | 5 | | Wall Mount Fan | 35W | 2 | 4 | | Grinder | 100W | 1 | 0.5 | | Computer | 30W | 1 | 7 | | CO6 | 10 |
| b. | Name the devices that are used for protection. | CO6 | 2 |