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

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

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| **Code :** | **18EE1003** | **Duration :** | **3hrs** |
| **Sub. Name :** | **BASIC ELECTRICAL AND ELECTRONICS ENGINEERING** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | **Course**  **Outcome** | **Marks** |
| **PART-A(10X1=10 MARKS)** | | | |
| 1. | In capacitor, current lags the voltage – True or False. | CO1 | 1 |
| 2. | Give the expression for sinusoidal alternating voltage. | CO1 | 1 |
| 3. | The purpose of using a laminated core is to reduce the \_\_\_\_\_\_\_\_\_ loss. | CO2 | 1 |
| 4. | If P = 4, f= 50Hz, find the synchronous speed of an AC machine. | CO2 | 1 |
| 5. | In circuit \_\_\_\_\_\_\_\_\_ should be connected in parallel to measure the voltage. | CO3 | 1 |
| 6. | Moving coil instruments can be used for AC measurements – True or False. | CO3 | 1 |
| 7. | Abbreviation of MCB is \_\_\_\_\_\_\_\_\_\_\_. | CO4 | 1 |
| 8. | Define Earthing. | CO4 | 1 |
| 9. | BJT is a current controlled device – True or False. | CO5 | 1 |
| 10. | Name the terminals of JFET. | CO5 | 1 |

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| **PART B (6 X 3= 18 MARKS)** | | | |
| 11. | A alternating sinusoidal current equation is given by i = . Obtain Im, Iavg, Irms, form factor, peak factor, frequency and time period. | CO1 | 3 |
| 12. | Sketch the characteristics of DC Series Generator. | CO2 | 3 |
| 13. | With neat diagram, explain the principle of thermocouple temperature Sensor. | CO3 | 3 |
| 14. | Name the different types of batteries. | CO4 | 3 |
| 15. | Compare BJT and MOSFET. | CO5 | 3 |
| 16. | State Demorgan’s law. | 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. | a. | Using Kirchhoff’s laws, find the current in various resistors in the circuit shown below. | CO1 | 6 |
| b. | Derive the expression for star to delta and delta to star transformation. | CO1 | 6 |

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| 18. | a. | With neat diagram explain the construction and working of DC Motor. | CO2 | 8 |
| b. | Furnish the applications of Synchronous Motor. | CO2 | 4 |
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| 19. |  | Explain the principle, construction, working and applications of Single PhaseInduction Motor with a neat diagram. | CO2 | 12 |
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| 20. |  | Describe the working of Induction type Energy meter with neat diagram. | CO3 | 12 |
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| 21. | a. | Explain the operation of Stair Case wiring with neat diagram. | CO4 | 4 |
| b. | 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 | | CO4 | 8 |
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| 22. |  | Discuss the Common emitter configuration of BJT and plot the dc characteristics. Also define the hybrid parameters associated with it. | CO5 | 12 |
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| 23. | a. | Illustrate the principle behind the conversion of Light energy into electrical energy in a photodiode. | CO5 | 6 |
| b. | Implement XOR function A ⋅ B = A. + . B using combination of AND gates, OR gates, and Inverters NAND gates only | CO6 | 6 |
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| **Compulsory:** | | | |  |
| 24. | a. | Discuss the operation of a three bit Up/Down synchronous counter. | CO6 | 6 |
| b. | Design a 4 bit shift register to store the data (1010) using JK flipflop. | CO6 | 6 |