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



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

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| **Code :** | **19EC1001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **FUNDAMENTALS OF ELECTRICAL AND ELECTRONICS ENGINEERING** | **Max. Marks :** | **100** |

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| **Q. No.** | **Questions** | **Course Outcome** | **Marks** |
| **PART – A (10X1 = 10 MARKS)** | | | |
| 1. | List any two examples of Non - Conventional energy. | CO1 | 1 |
| 2. | Relate 1 Unit of Energy in terms of watts. | CO1 | 1 |
| 3. | Predict the type of motor used in Hair dryer. | CO2 | 1 |
| 4. | Infer the rule followed by the direction of Induced emf in a generator. | CO2 | 1 |
| 5. | Identify the colour codes for 270Ω with tolerance value +/- 5%. | CO3 | 1 |
| 6. | Which diode works in the reverse breakdown voltage? | CO3 | 1 |
| 7. | Illustrate the symbol and truth table of Ex-OR gate. | CO4 | 1 |
| 8. | Summarize the functional blocks inside a processor. | CO4 | 1 |
| 9. | Name the IC used to detect the room temperature. | CO5 | 1 |
| 10. | Write the data bandwidth used in a 4G network. | CO5 | 1 |

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| **PART – B (6 X 3 = 18 MARKS)** | | | |
| 11. | An electric clothes dryer has a heating element with a resistance of 10Ω. What is the current in the element a) when it is connected to 240v b) How much charge passes through the element in 50minutes. | CO1 | 3 |
| 12. | Compare Motor with Generator. | CO2 | 3 |
| 13. | Illustrate the circuit connection of a 12v bulb with a relay. | CO3 | 3 |
| 14. | Y =  Show the logic diagram for the above given expression. | CO4 | 3 |
| 15. | List any three sensors and specify its applications in real time. | CO5 | 3 |
| 16. | Outline the general block diagram of communication system. | 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. | Explain the construction and working of a Flourescent tube with a neat diagram. | CO1 | 6 |
| b. | Illustrate with neat block diagram, the different ways by which electricity is generated through solar power. | CO1 | 6 |
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| 18. | a. | Identify the motor that is used in a washing machine and explain briefly its construction and working principle of the same. | CO2 | 8 |
| b. | Discuss the various types of DC motors with neat labeled sketches. | CO2 | 4 |
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| 19. | a. | Classsify the various types of resistors with its specifications. | CO3 | 6 |
| b. | Illustrate the output characteristics of a NPN transistor in CE configuration. | CO3 | 6 |
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| 20. | a. | Construct and explain the architecture of 8085 microprocessor with neat diagrams. | CO4 | 12 |
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| 21. | a. | Develop an irrigation system which automatically turns on/off motor by identifying the moisture content of the soil. | CO5 | 6 |
| b. | Develop an embedded system to identify the quality by isolating the good and bad fruits for a fruit processing industry. | CO5 | 6 |
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| 22. | a. | Examine the total units (Kwh) of energy consumed by 2 ceiling fans working for 6 hours and a pump set of 1.5hp working for 2 hours. Also calculate the bill amount to be paid for 2 months. (1Unit = Rs 2.50) | CO1 | 4 |
| b. | Outline the advantages of LED over the conventional CFL lamps. | CO1 | 4 |
| c. | Examine the safety measures to prevent from Electric shock. | CO1 | 4 |
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| 23. | a. | Interpret the function of PN junction diode  a) Forward bias condition  b) Reverse bias condition | CO3 | 8 |
| b. | Experiment the function of Zener diode as a Voltage regulator. | CO3 | 4 |
|  |  | **Compulsory:** | | |
| 24. | a. | Compare 1G, 2G, 3G, 4G technologies. | CO6 | 4 |
| b. | Explain briefly the various functional blocks in a cellular mobile comuunication system. | CO6 | 8 |