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



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

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| **Code :** | **18EE2021** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ELECTRICAL MACHINES AND POWER SYSTEMS** | **Max. Marks :** | **100** |

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| **Q. No.** | **Questions** | **Course**  **Outcome** | **Marks** |
| **PART – A (10X1 = 10 MARKS)** | | | |
| 1. | State faraday’s law of electromagnetic induction. | CO1 | 1 |
| 2. | Sketch energy conversion representation of generator mode. | CO1 | 1 |
| 3. | Write the torque equation of a DC motor. | CO2 | 1 |
| 4. | Infer the need of starters. | CO3 | 1 |
| 5. | The transformation ratio of a transformer is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | CO4 | 1 |
| 6. | Name the types of induction motors. | CO1 | 1 |
| 7. | Draw the speed-torque characteristcs of an induction motor. | CO3 | 1 |
| 8. | Give any two applications of stepper motor. | CO2 | 1 |
| 9. | Define duty cycle of a motor. | CO4 | 1 |
| 10. | Write the two ways used to transfer electricity. | CO6 | 1 |

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| **PART – B (6 X 3 = 18 MARKS)** | | | |
| 11. | Draw the block diagram of electromechanical energy conversion. | CO1 | 3 |
| 12. | Name the various breaking methods adopted to a DC motor. | CO3 | 3 |
| 13. | Write the role of CTs and PTs. | CO4 | 3 |
| 14. | Summarize the salient features of linear induction motor. | CO2 | 3 |
| 15. | Point out the various constraints used for motor selction in industrial application. | CO4 | 3 |
| 16. | Draw the single line diagram of a typical power 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. |  | Illustrate the construction and working of a DC generator in detail. | CO1 | 12 |
| 18. | a. | Name the different types of starters used to start the DC motors. | CO3 | 4 |
| b. | With neat sketch, describe the working of four point starter. | CO3 | 8 |
| 19. |  | Elucidate the various speed control methods adopted to DC motors. | CO3 | 12 |
| 20. |  | Construct an equivalent circuit of an single phase transformer with suitable test procedure. | CO4 | 12 |
| 21. | a. | Describe the working of star-delta starter with its connection diagram. | CO3 | 8 |
| b. | Summarize the benefits of autotransformer starters. | CO2 | 4 |
| 22. |  | Discuss the working of brushless alternator in detail. | CO2 | 12 |
| 23. |  | Draw and explain the major components in a typical substation with its layout. | CO5 | 12 |
| **Compulsory:** | | | |  |
| 24. |  | Compare EHVAC and EHVDC transmission system in detail. | CO5 | 12 |