

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**B.Tech II Year II Semester Regular & Supplementary Examinations August-2023**  
**ELECTRICAL MACHINES-II**

(Electrical and Electronics Engineering)

**Time: 3 Hours**

**Max. Marks: 60**

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- |     |   |     |    |    |
|-----|---|-----|----|----|
| 1 a | Explain the classification of transformers.                     | CO1 | L1 | 6M |
| b   | Explain the No-load phasor diagram of single phase transformer. | CO1 | L1 | 6M |

**OR**

- |     |  |     |    |    |
|-----|--|-----|----|----|
| 2 a | What are the main components of transformer?               | CO1 | L2 | 6M |
| b   | Explain the equivalent circuit of single phase transformer | CO1 | L2 | 6M |

**UNIT-II**

- |     |  |     |    |    |
|-----|--|-----|----|----|
| 3 a | Explain sumpner's test in detail.                    | CO2 | L3 | 6M |
| b   | List out the application of three phase transformer. | CO2 | L3 | 6M |

**OR**

- |     |   |     |    |    |
|-----|---|-----|----|----|
| 4 a | Explain star-star connection of transformer with neat diagram.  | CO2 | L3 | 6M |
| b   | Explain delta-delta connection of transformer with neat sketch. | CO2 | L3 | 6M |

**UNIT-III**

- |     |   |     |    |    |
|-----|---|-----|----|----|
| 5 a | Draw the Equivalent circuit of a 3 phase induction motor.   | CO3 | L1 | 6M |
| b   | A three phase squirrel cage induction motor connected to 60HZ line, possesses the synchronous speed of 900 r/min. the motor absorbs 40KW and the stator copper and iron loss amount to 5KW and 1KW respectively, calculate torque developed by the motor. | CO3 | L3 | 6M |

**OR**

- |     |   |     |    |    |
|-----|---|-----|----|----|
| 6 a | Explain the power flow diagram of induction machine.    | CO3 | L3 | 6M |
| b   | Explain rotor current frequency of the induction motor. | CO3 | L3 | 6M |

**UNIT-IV**

- |     |   |     |    |    |
|-----|---|-----|----|----|
| 7 a | Explain Torque-Slip Characteristics of Induction machine.                 | CO5 | L3 | 6M |
| b   | What are the methods available for speed control of 3Ø induction machine. | CO5 | L4 | 6M |

**OR**

- |     |   |     |    |    |
|-----|---|-----|----|----|
| 8 a | A 3 phase induction motor is driving full load torque which is independent of speed. If line voltage drops to 90% of the rated value. Find the increase in motor copper losses. | CO5 | L3 | 6M |
| b   | Explain the method of emf injection in the rotor circuit for speed control of three phase induction motor.  | CO5 | L3 | 6M |

**UNIT-V**

- |     |  |     |    |    |
|-----|--|-----|----|----|
| 9 a | What are the types of single-phase Induction Motors?       | CO6 | L1 | 6M |
| b   | List out the applications of single-phase induction motor. | CO6 | L2 | 6M |

**OR**

- |      |   |     |    |     |
|------|---|-----|----|-----|
| 10 a | Explain the construction and operating principle of capacitor start induction run motors in detail. | CO6 | L2 | 12M |
|------|---|-----|----|-----|

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