



## P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

**Seventh Semester, B.E. - Electrical and Electronics Engineering**

**Semester End Examination; Dec - 2016/Jan - 2017**

**Testing and Commissioning of Electrical Equipments**

Time: 3 hrs

Max. Marks: 100

*Note: Answer FIVE full questions, selecting ONE full question from each unit.*

### UNIT - I

- |      |  |    |
|------|--|----|
| 1 a. | Explain the various procedures of processing a power transformer before it is commissioned.  | 10 |
|      | b. What is polarization index? Draw a dry out centre for transformer. Explain the procedure. | 10 |
| 2 a. | Explain the typical tests carried out on transformer before commissioning.                   | 10 |
|      | b. Explain the physical, electrical and chemical properties of transformer oil.              | 10 |

### UNIT - II

- |      |   |    |
|------|---|----|
| 3 a. | Write the various specifications of alternators.  | 5  |
|      | b. State the various types of enclosures adopted in a generator.  | 5  |
|      | c. Explain the various abnormal conditions in synchronous generators and their effect in the generator along with its protection. | 10 |
| 4 a. | Explain the sudden 3-phase short circuit test on a 3-phase generator and how to calculate $x'_d$ and $x''_d$ ?                    | 10 |
|      | b. Describe the methods of cooling employed in synchronous machine.   | 4  |
|      | c. Explain the various steps of installation of a synchronous machine.  | 6  |

### UNIT - III

- |      |  |    |
|------|--|----|
| 5 a. | Explain in detail, the different methods of drying out of the induction motors.                | 10 |
|      | b. Explain briefly the no load, blocked rotor and temperature rise tests for Induction motors. | 10 |
| 6 a. | Explain the foundation work for installing medium and large induction motors.                  | 10 |
|      | b. Explain different duties of Induction motors.   | 6  |
|      | c. State the various causes for vibration of induction motors.                                 | 4  |

### UNIT - IV

- |      |   |    |
|------|---|----|
| 7 a. | Explain the various tests permitted on HV ac circuit breakers.  | 10 |
|      | b. Explain the maintenance of SF <sub>6</sub> circuit breakers.   | 10 |
| 8 a. | What are the specifications of CTS?   | 5  |
|      | b. Explain the mechanical test conducted on CB.   | 5  |
|      | c. Explain with the help of layout diagram, the short circuit testing station and the method of short circuit test conducted on circuit breakers. | 10 |

**UNIT - V**

- 9 a. Explain the safety management interface with O and M. 10
- b. State the seven principles of safety management. 10
- 10 a. What is electric shock? Distinguish between primary shock and secondary shock. 10
- b. State the significance of First Aid. Explain the steps of First Aid at sight when person get shocks. 10

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