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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. - 2014

Testing and Commissioning of Electrical Equipments

Time: 3 hrs

Max. Marks: 100

Note: Answer any FIVE full questions, selecting at least TWO full questions from each part.

PART - A

1. a. Write down typical specifications for an indoor distribution transformer as per BIS. What clearances are to be given while installing the same? 10
- b. Briefly explain the functions of standard accessories fitted on a Power transformer rated 50 MVA. 10
- 2 a. List the various tests performance on a power transformer explain: 10
(i) Polarity testing (ii) Temperature Rise test.
- b. Explain drying out process with suitable curves for a transformer. Write the preparations for drying and the procedure for drying out. 10
- 3 a. Write the various steps in detail while installing a large synchronous machine. Why the bearing pedestal is earthed at one end only? 10
- b. What are the various tests required for a synchronous generator? Explain open circuit and sustained short circuit tests for a synchronous generator. 10
- 4 a. Explain site selection and civil works required for installing a large synchronous motor. What precautions are to be taken to make the foundation free from vibration? 10
- b. Write a detailed note on cooling methods for a large synchronous generator. 10

PART - B

- 5 a. Write a note on duty classification of induction motors as per IS-4772-1968. Discuss the types of enclosures for induction motors. 10
- b. Why drying of windings necessary for induction motors? Describe drying out by
(i) Drying Chamber (ii) Circulating short circuit current. 10
6. a List the electrical tests that are carried out on Induction motor. Explain how high voltage test is conducted on an Induction motor. 10
- b. What are the causes of vibration in induction motors? Describe with diagrams, how the shaft alignment is carried out for an Induction motor. 10
- 7 a. Write the specifications of a high voltage AC circuit breaker. List the types of circuit breakers. 10
- b. List the commissioning tests done after a circuit breaker is installed. Write a note on high voltage test conducted on a circuit breaker at site. 10
- 8 a. Write a note on classification of insulating materials. 5
- b. Explain how transform oil is tested. 5
- c. Describe how polarization index is measured for a power transformer 5
- d. Write a short note on maintenance of circuit breakers. 5