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10EE756

Seventh Semester B.E. Degree Examination, Dec.2019/Jan.2020  
**Testing and Commissioning of Electrical Equipment**

3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. Explain the functional requirements and constructional features of transformer tanks. (12 Marks)  
b. Explain the significance of temperature rise test and the method to conduct this test on power transformers. (08 Marks)
- 2 a. Which are the four phasor groups adopted for standard connection of transformers? Explain any one, with phasor diagram and winding connection. (10 Marks)  
b. State any ten desired characteristics of transformer oil. (05 Marks)  
c. Explain the steps carried out in testing of transformer oil. (05 Marks)
- 3 a. Explain the procedure of low slip test and method of calculation of  $X_q$  from the same. (10 Marks)  
b. State the tests necessary on synchronous motors. (06 Marks)  
c. State the routine tests required for a synchronous generator. (04 Marks)
- 4 a. Define short circuit ratio (SCR) of a synchronous machine. What its significance? Explain the procedure of determining the SCR of a synchronous machine. (05 Marks)  
b. What are the various specifications of synchronous machines? (05 Marks)  
c. State and explain the various abnormal conditions in synchronous generators and their effects on the generator. State the respective protection. (10 Marks)

**PART – B**

- 5 a. State the various steps in the installation and commissioning of induction motors and electrical machines. (10 Marks)  
b. Explain briefly on “shimming work and shaft alignment” during installation of induction motors. (10 Marks)
- 6 a. Explain the procedure of dismantling of a large rotating machine dispatched in fully assembled condition. What are the checks after dismantling? (10 Marks)  
b. Explain the requirements of civil engineering work the foundation work for medium and large induction motors. (10 Marks)
- 7 a. Explain procedure of drying out an electrical rotating machine by:  
i) Using drying chamber and resistor heaters  
ii) Circulating short-circuit currents  
iii) Radiating lamps (infrared lamps) (10 Marks)  
b. Define slip. Explain the various methods used to measure the slip of an induction motors. (10 Marks)
- 8 a. What are the various steps involved in installation of circuit breakers? Explain the H.V. tests carried out on circuit breaker at site. (10 Marks)  
b. Explain with neat layout diagram of the short circuit test station, method of short circuit test conducted on circuit breaker. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.