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

Time: 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.