



USN

## Seventh Semester B.E. Degree Examination, June/July 2023 Testing and Commissioning of Power System Apparatus

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. List the various tools and accessories required for installation of various electrical machines. (06 Marks)
- b. Explain how insulation resistance is measured and give the significance of polarization index. (07 Marks)
- c. Discuss installation, inspection upon arrival at site and storage facility at site of a transformer. (07 Marks)

OR

- 2 a. Outline the Indian Electricity Rules. (06 Marks)
- b. Explain different drying techniques used in transformer. (07 Marks)
- c. Explain the impulse testing of power transformers. (07 Marks)

### Module-2

- 3 a. Illustrate the principle of brushless excitation system of a synchronous generator. (06 Marks)
- b. Classify the routine test required for a synchronous generator. (06 Marks)
- c. Describe the sudden  $3\phi$  short circuit test on a  $3\phi$  generator. Explain how to calculate  $x'_d$ ,  $x''_d$  and  $x_d$  from sudden  $3\phi$  SC test. (08 Marks)

OR

- 4 a. Enumerate the various steps in installation of a large rotating machine received in dismantled condition. (06 Marks)
- b. Discuss different methods of cooling of a turbo generator. (07 Marks)
- c. Define short circuit ratio of a synchronous machine. Explain the procedure for determining the SCR of synchronous machine. (07 Marks)

### Module-3

- 5 a. Enumerate the various abnormal conditions in induction motors and the protections provided against each. (07 Marks)
- b. Explain briefly the various methods of measuring the slip of an induction motor. (07 Marks)
- c. Explain the significance of balancing of rotor. How is static and dynamic balancing of rotor achieved in induction motor? (06 Marks)

OR

- 6 a. Outline the drying out methods of induction motor with necessary sketches. (06 Marks)
- b. Discuss the term efficiency of an induction motor. How can it be calculate from the data obtained from no load test and locked rotor test? (07 Marks)
- c. Explain with neat diagram, the high voltage test on induction motor. (07 Marks)

**Module-4**

- 7 a. Illustrate the various aspects to be considered in laying underground cables. (06 Marks)  
b. Describe the radar method of locating fault in cable. (07 Marks)  
c. Describe the various tests conducted on power cables at work and at site. (07 Marks)

OR

- 8 a. List the various factors to be considered while selecting a cable. (06 Marks)  
b. Explain how to check cable fault by means of a megger. (07 Marks)  
c. What precautions are necessary in cable jointing? (07 Marks)

**Module-5**

- 9 a. Discuss the various steps in installation and commissioning of outdoor circuit breakers. (06 Marks)  
b. Describe about short circuit test station and short circuit test. (07 Marks)  
c. Discuss the synthetic testing of circuit breakers. (07 Marks)

OR

- 10 a. Enumerate the specifications of High Voltage Circuit Breaker. (06 Marks)  
b. Describe typical low voltage, 3 phase, 4 wire and single phase AC supply system for residential building. (07 Marks)  
c. Explain the protective devices in residential electric installation. (07 Marks)

\*\*\*\*\*