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# M.Tech. (Electrical Engineering) (Power Systems and Renewable Energy) (Sem.–1)

## COMPUTER AIDED POWER SYSTEM ANALYSIS

Subject Code : PSRE-101/21

### M.Code: 91509

### Date of Examination : 19-1-23

Time : 3 Hrs.

Max. Marks : 60

#### INSTRUCTIONS TO CANDIDATES : 1.Attempt any FIVE questions out of EIGHT questions. 2.Each question carries TWELVE marks.

- 1. Prove that in bus admittance matrix diagonal elements are equal to the sum all the admittances connected at node i and off diagonal elements are equal to minus of the admittance connected between node i and j.
- 2. Write down the algorithm steps for load flow study using Newton Raphson method for system having;
  - a) PQ Buses
  - b) PQ and PVBuses
- 3. The positive, negative and zero sequence impedance of 100 MVA, Three phase, 15.5 Kv Star grounded, 50 Hz generator are jo. 15 pu, j0.08pu, j0.01 pu respectively on machine rating base. The machine is unloaded and working at rated terminal voltage. If grounded impedance of generator is j0.02 pu, then calculate magnitude of fault current in KA, for a B-phase to ground.
- 4. What is the role of voltage profile in power system? How automatic voltage regulator (AVR) plays important role in maintaining good voltage profile in power system. Discuss AVR in load flow.
- 5. What is the different types of faults that can occur in power system? Discuss the techniques which can be used for symmetrical fault analysis.
- 6. Draw and explain Security state diagram. What are the different contingencies that occur in power system? How the ranking of contingencies is made in power system. Discuss the analysis of power system under contingency.

- 7. What do you understand by outage in power system? How the line outage distribution factors are modelled for analysis of power system. Describe and explain overloading of lines under multiple line outages.
- 8. Write short note on:
  - a) Optimal Load flow Analysis
  - b) Continuation power flow

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.