*Total No. of Questions :8]* *[Total No. of Printed Pages :2*

 **Roll No** .....

# MEPS-104

## M.E/M.Tech. I Semester

Examination, June 2017

## Power Electronics Applications to Power Systems

***Time : Three Hours***

***Maximum Marks : 70***

***Note:*** i) Attempt any Five questions.
ii) All questions carry equal marks.

1. a) Develop an algorithm for formation of bus impedance matrix.
   b) Draw and explain the reactive power capability curve of an alternator.

2. a) What are the reactive and active power control variables? Explain in brief the concept of reactive power control variables.
   b) What is load flow solution? Explain its significance in power system analysis. Develop load flow equations suitable for solution by N-R method using nodal admittance approach.



3. a) Describe the concept and significance of generation shift and line outage distribution factors.
   b) What is meant by power system security? Discuss its importance in power system analysis.







4. a) What are different power system security levels? Explain them with the help of flow chart.
   b) What is contingency selection and evaluation? Describe pre-contingency corrective rescheduling approach.



5. a) What are the proximity indicators for voltage stability assessment of power systems? Explain any one of them.
   b) Discuss the importance and evaluation of participation factors based on model analysis.

6. a) Describe flexible ac transmission system and its applications in power system.
   b) Explain the configuration and operating characteristics of TSC.

7. a) Explain the basic principle and different mode of operation of TCSC.
   b) Describe the transient stability model of thyristor controlled series capacitor.



8. Write short notes on any two of the following:
   a) Comparison of static Var compensators
   b) Minimum Eigen value of reduced load flow Jacobian
   c) Security constrained economic dispatch
   d) Model of phase shifting transformer

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