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Code No: A4905

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH I SEMESTER EXAMINATIONS, APRIL/MAY-2012
VOLTAGE STABILITY
(ELECTRICAL POWER ENGINEERING)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks

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1.a) Classify power system operation from the view point of voltage instability, voltage collapse and short and long term stability.
b) Briefly discuss the concept of voltage stability from the view point of reactive power deficit.

2.a) Explain the factors affecting voltage collapse and instability.
b) Discuss the significance of the Q-V curve in voltage stability.

3.a) Discuss the relation of voltage stability and rotor angle stability.
b) What is P-V curve? How it help to assess the voltage stability

4. Describe the analytical concept of voltage stability for a single machine connected to infinite bus.

5.a) Develop a direct indicator of voltage stability of a single machine connected to infinite bus. What is its effects on voltage stability margin?
b) Explain how the following loads that influences the voltage stability
(i) Discharge lights, (ii) Air conditioning and (iii) Electronic power supplies.

6. Discuss in brief how the following devices can compensate the reactive power
a) Shunt compensation
b) Synchronous condenser
c) SVC
d) Booster transformer.

7.a) What are the various methods of improving voltage stability.
b) Explain the effect of location of series capacitor on voltage stability.

8. Write short notes on the following
a) Voltage security
b) On load tap changing transformer
c) Causes of voltage collapse incidences

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