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

Roll No .....

EX-802 (GS)

B.E. VIII Semester

Examination, May 2018

Grading System (GS)

Computer Applications to Power System

Time : Three Hours

Maximum Marks :70

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

1. a) The bus incidence matrix of 7 elements, 5 nodes system is given below. Obtain the element-node incidence matrix and the oriented graph. The columns represent elements.

⟶ Element

A = Buses ↓							
P	1	0	0	−1	0	0	1
Q	−1	−1	−1	0	0	0	0
R	0	0	1	0	−1	1	0
S	0	0	0	0	0	−1	−1

b) Explain the step-by-step algorithm for the formation of Bus impedance matrix when a branch is added to the partial network.

2. a) What is Line Loadability? Discuss its objectives and compare the techniques to enhance transmission line loadability.
b) Draw a typical generator capability curve and explain generator limits with justification.

3. a) Explain how load bus voltage is affected by the injection of reactive power?
b) Explain different types of static var compensators with circuit and phasor diagrams.

4. a) Distinguish between regulated and uniform shunt and series compensation.
b) Explain the effects of shunt and series compensation on the loadability of transmission lines.

5. a) Describe the significance of generation shift and line outage distribution factors in sensitivity analysis of power system. **rgpvonline.com**
b) Explain sensitivity relating changes in reactive power generation for changes in PV-bus voltages.

6. a) Describe major functions of system security and static security levels of power system.
b) Draw a flow chart for contingency analysis of inter connected power system.

7. a) Develop an iterative algorithm for solving the optimum dispatch of an *n* bus power system taking into account the effects of system losses.
b) Describe modal analysis using reduced Jacobean for voltage stability assessment.

8. Write short notes on any two of the following:
a) Effect of load models on voltage stability of power system
b) PV-curve for voltage stability assessment
c) Corrective rescheduling for power system security
d) Transmission line models

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