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

Roll No .....

MEPE - 203

M.E./M.Tech., II Semester

Examination, June 2016

Power Electronics Applications to Power Systems

Time : Three Hours

Maximum Marks : 70

Note: Attempt any five questions. All questions carry equal marks.

1. a) Determine the Y_{bus} for the system shown in figure 1 the line series impedances are as follows. 7

Line (bus to bus)		Impedance (p 4)
1–2	→	0.25 + j 1.0
1–3	→	0.20 + j 0.8
1–4	→	0.30 + j 1.2
2–3	→	0.20 + j 0.8
3–4	→	0.15 + j 0.6

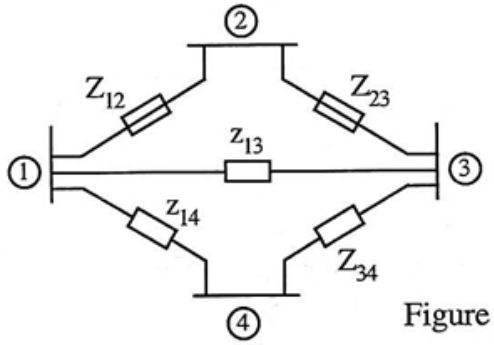

Figure 1

b) What are the advantages of Y_{Bus} over Z_{Bus}? 7

2. a) What do you understand by power system security. Explain in brief the various steps associated with security analysis. 7
   b) Establish a general sensitivity relations applicable in power system operation. 7

3. Why we need for the compensation? Distinguish between series and shunt compensation in detail. 14

4. a) Explain the meaning of pre-contingency and post contingency connective rescheduling. 7
   b) Develop necessary condition for security constrained economic dispatch. Suggest any method for it solution. 7

5. a) Explain the need of voltage stability is power system network. How it is different than angle stability. 7
   b) How PV curve is used for voltage stability assessment? Explain. 7

6. What is flexible A.C. Transmission system? Describe briefly various devices used in this system. Hence classify the various fact controller with proper circuit diagram. 14

7. Explain with neat diagrams the operation of a basic TCR and derive expression for the control law of the basic TCR and explain the control law. 14

8. Write short notes on any two of the following : 14
   a) Thyristor Controlled Series Capacitors (TCSC)
   b) Advantages of FACTS controller
   c) Generator shift distribution factor
   d) Load flow study

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