24228

B. Tech. 5th Sem. (EE)

Examination – December, 2016

POWER SYSTEMS-I

Paper : EE-315-F

Time : Three Hours]   [Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. 1 is *compulsory* and attempt one from each Section. All questions carry equal marks.

1. (a) Write short note on single phase representation of balance three phase network.   5

   (b) Write short note on comparison of load flow methods.   5

   (c) Write short note on incremental fuel cost for a power plant.   5

   (d) Write short note on ACE(Area Control Error)   5

SECTION – A

2. Explain steady state model of Synchronous Generator in detail.   20

3. Write short note on :   20

   (a) Complex power

   (b) Current breaker

SECTION – B

4. Draw neat & clean Flow Chart of Gauss-Siedel method & explain its algorithm in detail.   20

5. The load flow data for the sample power system are given below. The voltage magnitude at bus 2 is to be maintained at 1.04 p.u. The max & min reactive power limits of the generator at bus 2 are 0.35 & 0.0 p.u. respectively. Determine the set of load flow equation at the end of first iteration by using N-R method :   20

Bus Code	Impedance	Line Charging Admitance
1 – 2	0.08+j0.24	0.0
1 – 3	0.02+j0.06	0.0
2 – 3	0.06+j0.18	0.0

Schedule of generation of loads :

Bus Code	Assumed Vol.	Generation MW	MVAR	Load MW	MVAR
1	1.06+j0.0	0	0	0	0
2	1.0+j0.0	0.2	0.0	0.0	0.0
3	1.0+j0.0	0	0	0.6	0.25

SECTION – C

6. Write short note on optimal operation of generator on bus bar.   20

7. Explain optimal scheduling of hydrothermal system in detail.   20

SECTION – D

8. Explain load frequency control of single area in detail.   20

9. Explain Automatic voltage control in detail.   20

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