Please check that this question paper contains___09___ questions and _02_ printed pages within first ten minutes.

MORNING

[Total No. of Questions: 09] 03 OCT 2023 [Total No. of Pages: 02]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018 onward)
Semester: 6th
Name of Subject: Power Systems-II (Operation and Control)
Subject Code: PCEE-114
Paper ID: 17226
Scientific calculator is Allowed

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A

[Marks: 02 each]

Q1.

a) How the various power system buses can be classified for load flow analysis.

b) Which out of transient stability limit and steady-state stability limit is lower? Give reason.

c) How can the stability of power system be improved?

d) Define area control error of a two-area automatic load frequency control system.

e) Differentiate between preventive and emergency controls of power system.

f) Explain the importance of energy control centres in power system.

Part – B

[Marks: 04 each]

Q2. Enlist the advantages of per unit system.

Q3. Explain the procedure to determine the stability of power system using point by point method.

Q4. Explain the automatic load frequency and automatic voltage control of power system through schematic representation.

Q5. Distinguish between steady state, dynamic and transient stability of power system.

P.T.O.

Q6. Why regulatory framework is required in power system. Give your opinions.

Q7. Explain the entities of competitive electricity markets in context to Indian power system.

Part – C **[Marks: 12 each]**

Q8. Discuss the application of Gauss – Seidel method for load flow analysis of power system. Compare features of various methods used for load flow analysis.

OR

A large three phase cylindrical rotor generator is delivering power over a transmission system to an infinite bus bar when a fault occurs on the system. The reactance between the generator and infinite bus bar before, during and after the fault is 0.4, 1.0 and 0.6 p.u., respectively. Calculate the critical clearing angle if at the time of occurrence of fault the power transfer was 1.5 p.u. Sketch the power angle curves and show the equality of accelerating and decelerating areas. Take E = 1.2 p.u. and V = 1 p.u.

Q9. Develop the block diagram model of single area automatic load frequency control system. Suggest and explain the methods which can be used to improve its performance.

OR

Develop the block diagram model of automatic voltage control of power system. Suggest and explain the methods which can be used to improve its performance.

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