M.E. First Semester (Electrical (Electrical Power System)) (F.T.)

13302 : Power System Dynamics : 1 SEPS 4

P. Pages : 1 | AU - 3259

Time : Three Hours | Max. Marks : 80

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Notes : 1. Answer **two** question from section A and **two** question from section B.
2. Due credit will be given to neatness and adequate Dimensions.
3. Assume suitable date wherever necessary.
4. Diagrams and chemicals equations should be given wherever necessary.
5. Illustrate your answer necessary with the help of neat sketches.
6. Use of pen Blue/Black ink/refill only for writing book.

SECTION – A

1. a) What are pre-calculated swing curves? Explain their use. **5**

   b) Describe the classical model of one machine connected to infinite bus with assumptions. **10**

   c) What do you mean by tie-Lines & oscillations. How they affect the stability? **5**

2. a) With the help of equal area criterion determine the stability limit of a system, when the mechanical power is suddenly increased. **10**

   b) Explain the term electrical stiffness of synchronous machine. **5**

   c) Explain the methods of simulation with http://www.sgbauonline.com **5**
      i) Linearized system equations
      ii) Large system with non-Linear equations

3. a) Draw and explain the flux path for. x_d & x_q, x_d' & x_q', x_d'' & x_q'' of a salient pole synchronous machine. **10**

   b) Differentiate between, steady state dynamic state & transient state stability with suitable example. **10**

SECTION – B

4. a) For a regulated synchronous machine describe the demagnetizing effect of armature reaction and effect of small speed changes. **10**

   b) Explain the Root-Locus analysis of a regulated machine connected to an infinite bus. **10**

5. a) For a two machine system with losses, describe the effect of inertia for all possible cases. **10**

   b) Explain the effect of excitation on generator power limit. **10**

6. a) For a two machine system with losses explain the effect of governor action. **10**

   b) Explain the following
      i) Conservative criterion for stability **5**
      ii) Effect of short circuit ratio on steady state power limits. **5**

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