



- Notes :
1. Attempt **any five** questions.
 2. All questions carry equal marks.
 3. Due credit will be given to neatness and adequate dimensions.
 4. Assume suitable data wherever necessary.
 5. Illustrate your answers wherever necessary with the help of neat sketches.
 6. Use of slide rule, Logarithmic tables, Steam tables, Mollier's chart, Drawing instruments, Thermodynamic tables for moist air, Psychrometric charts and Refrigeration charts is permitted.
 7. Use of non-programmable calculator is permitted.

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| 1. | a) | How the Excitation system does affect the stability limit? What is the limitation of quick response excitation? | 7 |
| | b) | Explain simplified machine model with stator and rotor emulsion. | 7 |
| 2. | a) | Draw the phasor diagram of synchronous generator in transient state on d-q axis and write the steps for calculation of initial condition. | 7 |
| | b) | What do you mean by synchronizing coefficient? Derive the expression and hence explain the condition of stability. | 7 |
| 3. | a) | Find the modes of oscillation of a three-machine system. The machines are unregulated and classical model representation is used. | 7 |
| | b) | Explain the Inclusion model for multimachine power system with one axis model? | 7 |
| 4. | a) | Explain active method for islanding detection. | 7 |
| | b) | Derive two axis model of synchronous machine for salient pole machine. | 7 |
| 5. | a) | Explain and Analyze the comparison of angle and voltage stability. | 7 |
| | b) | Explain the special techniques for analysis of large power system. | 7 |
| 6. | a) | Explain the analysis of angle and voltage stability. | 7 |
| | b) | Explain the PSS [Power System Stabilizer] design and give its application? | 7 |
| 7. | a) | Draw and explain voltage stability problem of a single machine connected to load through a line. | 7 |
| | b) | Write in brief simple representation of excitation control? | 7 |
| 8. | Write the short note on any two . | | 14 |
| | i) | Synchronous of machine | ii) Point-by-point method for transient stability. |
| | iii) | SCR of synchronous machine. | |
