



- Notes :
1. All questions carry equal marks.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.
 5. 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.
 6. Answer **five** questions.

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| 1. | a) | Explain with neat block diagram of excitation system in power phenomena system generation. | 7 |
| | b) | How does excitation affects the stability limits. | 7 |
| 2. | a) | Derive equation for unregulated synchronous machine and explain the effect of. | 7 |
| | i) | Demagnetizing of armature reaction | |
| | ii) | Small change in speed. | |
| | b) | What do you mean by synchronizing coefficient? Derive the expression and hence explain the condition of stability. | 7 |
| 3. | a) | Give the representation of non- linear load for small single model. | 7 |
| | b) | Find the modes of oscillation of three machine system. The machine are unregulated and classical model representation is used. | 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 voltage collapse. List the factors affecting the instability. | 7 |
| | b) | Explain the effect reclosing on transient stability. | 7 |
| 6. | a) | State and explain the implementation of power system dynamics. | 7 |
| | b) | Explain the analysis of angle and voltage stability. | 7 |
| 7. | a) | Discuss and derive the equation for small signal model. | 7 |
| | b) | Explain in detail the model of synchronous machine. | 7 |
| 8. | a) | 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. | |
