

M.E. Second Semester (Electrical Engineering (Electrical Power System))  
**Power System Dynamics and Control : EP 2201**

P. Pages : 2

Time : Three Hours



AU - 3425

Max. Marks : 80

- Notes :
1. Answer **three** question from Section A and **three** question from Section B.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Illustrate your answer necessary with the help of neat sketches.
  4. Use of pen Blue/Black ink/refill only for writing the answer book.

**SECTION – A**

1. a) Explain state of operation of power system. 7  
b) Explain the method of point by point solution for solving the swing equation. 6

**OR**

2. a) Give in detail classification of steady state stability transient state and dynamic state stability on the basis of type of disturbance. 7  
b) Explain the system dynamic problem. 6
3. a) Explain D.C. Excitation system with respect to self excited D.C. generator. 7  
b) Explain variable Impedance type SVC. 6

**OR**

4. a) Deduce park's transformation relating the three phase current of a synchronous machine to its corresponding d-y-o variables. 7  
b) Draw and explain steady state control characteristics of variable impedance S.V.C. 6
5. a) Explain synchronizing and damping torque Analysis. Application : Fast Excitation system. 7  
b) State and explain the assumptions made in multimachine stability study. 7

**OR**

6. a) Explain simplified system model multimachine system. 7  
b) Explain synchronising torque Analysis and damping torque Analysis Application: System without AVR. 7

**SECTION – B**

7. Explain Eigen value analysis using power system stabilizers. 13

**OR**

- |    |    |  |    |
|----|----|--|----|
| 8. | a) | Explain supplementary modulation control of SVC.                 | 7  |
|    | b) | Explain modeling of excitation system.                           | 6  |
| 9. |    | Explain transient Instability analysis using digital simulation. | 13 |

**OR**

- |     |    |   |    |
|-----|----|---|----|
| 10. |    | Explain transient Instability analysis using Energy function method.          | 13 |
| 11. | a) | What is voltage stability? Explain the factors affecting voltage instability? | 7  |
|     | b) | Compare angle and voltage stability.  | 7  |

**OR**

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|-----|----|--|---|
| 12. | a) | Explain Analysis of voltage Instability. | 7 |
|     | b) | Explain Long term voltage Instability.   | 7 |

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