

IV B.Tech I Semester Regular Examinations, November 2005
INSTRUMENTATION AND CONTROL IN ELECTRICAL SYSTEMS
(Instrumentation & Control Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain briefly about the importance of transmission and distribution of a power system also state its classifications. [4]
(b) Briefly discuss about a typical distribution network. [12]
2. (a) Define and discuss briefly about per unit quantities. [6]
(b) Discuss briefly about the per unit system applied to single phase and three phase circuits. [10]
3. State different types of AVR's. explain how voltage can be controlled using any one type of AVR. [16M]
4. Discuss briefly about the factors affecting a distribution system. [16M]
5. Explain the role of computers in distribution system planning. [16M]
6. Define SCADA . Discuss briefly about various components of SCADA [16M]
7. (a) Classify different types of circuit breakers.
(b) Explain in detail about SF6 circuit breaker. [4+12]
8. Briefly discuss about distance(impedance) relay with a schematic diagram. [16]

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1. Draw the typical lay out of a power system and explain in detail about the typical power system. [16]
2. Discuss the importance of the single diagram in a power system representation and draw a single line diagram consisting of three generators connected to a bus bar and with two transmission networks. [16]
3. (a) What is AGC? [2M]
(b) Discuss in detail about AGC of a powr system. [14M]
4. Discuss briefly about the factors affecting a distrubtion system. [16M]
5. Define tariff . What are the desirable characteristics of a tariff. [16M]
6. Discuss briefly about central monitoring system. [16M]
7. (a) What is the purpose of a circuit breaker?
(b) Explain the mechanism of any one type of circuit breaker's. [2+14]
8. With the help of a neat sketch briefly discuss about the operation of a watt-hour meter type relay. [16]

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1. What is a power system, what are its components. Explain in detail atleast five of its components [16]
2. Discuss the importance of the single diagram in a power system representation and draw a single line diagram consisting of three generators connected to a bus bar and with two transmission networks. [16]
3. State different types of AVR's. explain how voltage can be controlled using any one type of AVR. [16M]
4. Explain about the distribution system planning. [16M]
5. (a) What is variable load. What are its effects. [8M]
(b) briefly discuss about the load curve and its importance. [8M]
6. Define SCADA . Discuss briefly about various components of SCADA [16M]
7. (a) Classify different types of circuit breakers.
(b) Explain in detail about SF6 circuit breaker. [4+12]
8. (a) What is a relay? State its classifications.
(b) Explain briefly about an electro magnetic attraction type relay. [4+12]

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1. What are the different parameters of lines in transmission and distribution ? explain in detail about each parameter with associated formulae; what is the effect of earth on capacitance. [16]
2. Discuss the importance of the single diagram in a power system representation and draw a single line diagram consisting of three generators connected to a bus bar and with two transmission networks. [16]
3. State different types of AVR's. explain how voltage can be controlled using any one type of AVR. [16M]
4. Discuss briefly about the factors affecting a distribution system. [16M]
5. Explain the role of computers in distribution system planning. [16M]
6. Define SCADA . Discuss briefly about various components of SCADA [16M]
7. (a) What is the purpose of a circuit breaker?
(b) Explain the mechanism of any one type of circuit breaker's. [2+14]
8. Sketch the block diagram with basic the basic components of a digital relay and discuss its role in protecting the system also give its flow chart. [16]

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