

Code No: R05320205

R05**Set No. 2****III B.Tech II Semester Examinations, December 2010****SWITCHGEAR AND PROTECTION****Electrical And Electronics Engineering****Time: 3 hours****Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain clearly with neat diagram different types of lightning arresters.
 (b) State the various causes of over voltages in a power system? [8+8]
2. (a) Describe briefly the arc phenomena in a Circuit Breaker.
 (b) In a short circuit test on a circuit breaker, the following readings were obtained on single frequency transient:
 - i. time to reach the peak restriking voltage, 50μ sec
 - ii. the peak restriking voltage, 100 kV
 Determine the average RRRV and frequency of oscillations. [8+8]
3. (a) Why double bus double breakers arrangement is rarely used at sub-stations.
 (b) What is the main drawback of differential over current protection for bus bars and how is it overcome. [6+10]
4. (a) Explain the phenomenon of arcing ground.
 (b) Suggest some methods to minimize the effect of this phenomenon with neat sketch. [6+10]
5. (a) Discuss about differential protection scheme for transformers.
 (b) A 3-phase transformer rated for 33kV/6.6kV is connected star/delta and the protecting current transformer on the low voltage side have a ratio of 400/5. Determine the ratio of the current transformer on the HV side. [8+8]
6. (a) Explain how the inclusion of a resistance in the neutral earthing circuit of an alternator affects the performance of the differential protection of the three-phase stator.
 (b) Describe how protection is provided in large turbo-alternators against earth-fault in the rotor [8+8]
7. Discuss the principle of arc extinction in an oil circuit breaker with reference to restriking and recovery voltage? [16]
8. Classify the types of over current relays and give their applications along with their approximate characteristics? [16]

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R05**Set No. 4****III B.Tech II Semester Examinations, December 2010****SWITCHGEAR AND PROTECTION****Electrical And Electronics Engineering****Time: 3 hours****Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Why double bus double breakers arrangement is rarely used at sub-stations.
 (b) What is the main drawback of differential over current protection for bus bars and how is it overcome. [6+10]
2. (a) Explain the phenomenon of arcing ground.
 (b) Suggest some methods to minimize the effect of this phenomenon with neat sketch. [6+10]
3. Classify the types of over current relays and give their applications along with their approximate characteristics? [16]
4. (a) Describe briefly the arc phenomena in a Circuit Breaker.
 (b) In a short circuit test on a circuit breaker, the following readings were obtained on single frequency transient:
 - i. time to reach the peak restriking voltage, 50μ sec
 - ii. the peak restriking voltage, 100 kV
 Determine the average RRRV and frequency of oscillations. [8+8]
5. (a) Explain how the inclusion of a resistance in the neutral earthing circuit of an alternator affects the performance of the differential protection of the three-phase stator.
 (b) Describe how protection is provided in large turbo-alternators against earth-fault in the rotor [8+8]
6. Discuss the principle of arc extinction in an oil circuit breaker with reference to restriking and recovery voltage? [16]
7. (a) Explain clearly with neat diagram different types of lightning arresters.
 (b) State the various causes of over voltages in a power system? [8+8]
8. (a) Discuss about differential protection scheme for transformers.
 (b) A 3-phase transformer rated for 33kV/6.6kV is connected star/delta and the protecting current transformer on the low voltage side have a ratio of 400/5. Determine the ratio of the current transformer on the HV side. [8+8]

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R05**Set No. 1****III B.Tech II Semester Examinations, December 2010****SWITCHGEAR AND PROTECTION****Electrical And Electronics Engineering****Time: 3 hours****Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Why double bus double breakers arrangement is rarely used at sub-stations.
 (b) What is the main drawback of differential over current protection for bus bars and how is it overcome. [6+10]
2. Classify the types of over current relays and give their applications along with their approximate characteristics? [16]
3. (a) Explain how the inclusion of a resistance in the neutral earthing circuit of an alternator affects the performance of the differential protection of the three-phase stator.
 (b) Describe how protection is provided in large turbo-alternators against earth-fault in the rotor [8+8]
4. Discuss the principle of arc extinction in an oil circuit breaker with reference to restriking and recovery voltage? [16]
5. (a) Explain clearly with neat diagram different types of lightning arresters.
 (b) State the various causes of over voltages in a power system? [8+8]
6. (a) Explain the phenomenon of arcing ground.
 (b) Suggest some methods to minimize the effect of this phenomenon with neat sketch. [6+10]
7. (a) Discuss about differential protection scheme for transformers.
 (b) A 3-phase transformer rated for 33kV/6.6kV is connected star/delta and the protecting current transformer on the low voltage side have a ratio of 400/5. Determine the ratio of the current transformer on the HV side. [8+8]
8. (a) Describe briefly the arc phenomena in a Circuit Breaker.
 (b) In a short circuit test on a circuit breaker, the following readings were obtained on single frequency transient:
 - i. time to reach the peak restriking voltage, 50μ sec
 - ii. the peak restriking voltage, 100 kV
 Determine the average RRRV and frequency of oscillations. [8+8]

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R05**Set No. 3****III B.Tech II Semester Examinations, December 2010****SWITCHGEAR AND PROTECTION****Electrical And Electronics Engineering****Time: 3 hours****Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. Discuss the principle of arc extinction in an oil circuit breaker with reference to restriking and recovery voltage? [16]
2. (a) Discuss about differential protection scheme for transformers.
 (b) A 3-phase transformer rated for 33kV/6.6kV is connected star/delta and the protecting current transformer on the low voltage side have a ratio of 400/5. Determine the ratio of the current transformer on the HV side. [8+8]
3. Classify the types of over current relays and give their applications along with their approximate characteristics? [16]
4. (a) Describe briefly the arc phenomena in a Circuit Breaker.
 (b) In a short circuit test on a circuit breaker, the following readings were obtained on single frequency transient:
 - i. time to reach the peak restriking voltage, 50μ sec
 - ii. the peak restriking voltage, 100 kV
 Determine the average RRRV and frequency of oscillations. [8+8]
5. (a) Explain how the inclusion of a resistance in the neutral earthing circuit of an alternator affects the performance of the differential protection of the three-phase stator.
 (b) Describe how protection is provided in large turbo-alternators against earth-fault in the rotor [8+8]
6. (a) Explain the phenomenon of arcing ground.
 (b) Suggest some methods to minimize the effect of this phenomenon with neat sketch. [6+10]
7. (a) Explain clearly with neat diagram different types of lightning arresters.
 (b) State the various causes of over voltages in a power system? [8+8]
8. (a) Why double bus double breakers arrangement is rarely used at sub-stations.
 (b) What is the main drawback of differential over current protection for bus bars and how is it overcome. [6+10]
