

Elective-I : Switchgear and Protection

P. Pages : 1

Time : Three Hours



GUG/S/18/10321

Max. Marks : 70

- Notes :
1. All questions carry equal marks.
 2. Answer **any five** questions.
 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.

1. a) How does a distance relay derive its name from the function? Draw a neat sketch and explain in brief its function. **7**
b) Define the following. **7**
i) Burden ii) Overreach
iii) Dropout or reset iv) Underreach
2. What are the advantages of digital protection? Describe with block diagram the principle of operation of a microprocessor based percentage differential relay scheme for operation of a power transformer. **14**
3. a) What are the common type of generator faults? How is generator stator is protected against an in-turn fault? **7**
b) Write & Explain an algorithm for transformer protection. **7**
4. What are the modern trends in power system protection? Discuss the different types of digital and computer aided relays. **14**
5. How do different relays perform with respect to their behaviour on load, effect of arc resistance on the reach and response to power sending in transmission line protection. **14**
6. a) Describe briefly the following carrier distance protection Scheme used in transmission lines. **7**
i) Carrier transfer.
ii) Carrier blocking.
b) Explain carrier system of protection with a block diagram. **7**
7. What type of protection is used for Bus-bar? Write on algorithm for Bus-bar protection. **14**
8. Discuss the following **any two**. **14**
i) Duality between amplitude and phase comparator.
ii) Digital relaying.
iii) Reactor protection.
