

(3 Hours)

[Total Marks : 80

- N.B.: 1) Question No.1 is compulsory.
2) Attempt any three questions remaining five questions.
3) Draw neat diagrams wherever it is necessary.

1. Answer the following :

20

- a) What are the difficulties associated with differential protection?
 - b) Where and why isolators, contractors and circuit breakers are used in power system?
 - c) Why instrument transformers are required in power system?
 - d) List all the desirable qualities of protection scheme and explain any two qualities in detail.
2. a) Explain working of different types of fuse with their applications. 10
b) Explain working principle of Vacuum circuit breaker and constructional details. 10
3. a) What is working principle of distance relays. Differentiate between different types of distance relays. 10
b) Name the different types of fault that occur in transformer. Explain differential protection for star delta transformer. 10
4. a) Classify overcurrent relays depending on their time current characteristics. Why IDMT relay is widely used for Over current protection. 10
b) With a neat diagram, explain working principle of induction disc relay with its application. 10
5. a) Explain causes, remedies and effect of unbalance, phase reversal and single phasing in Induction motor. 10
b) Explain the block diagram of static relay and discuss in detail about comparators. 10
6. a) Discuss various properties of SF6 gas that make it suitable for arc quenching and explain SF6 CB in detail with suitable diagram. 10
b) What are the protection provided for rotor of an alternator. 10
