

(3 Hours)

Total Marks - 80

- i) Question No. 1 is compulsory.
- ii) Attempt any three questions from remaining.
- iii) Assume suitable data if necessary (mention the same).
- iv) Figures to the right indicate full marks.

Q.1 Attempt **any four**. [05*04]

- A) List the desirable qualities of protection scheme & explain any two qualities in details.
- B) Explain the time grading protection for radial feeder.
- C) Explain the advantages & disadvantages of static relays.
- D) Explain pantograph type of isolator.
- E) Explain different methods of arc interruption.
- F) Explain construction & working principle of bulk oil circuit breaker.

Q.2

- A) Explain the protection scheme of induction motor against single phasing. [10]
- B) Explain restricted earth fault (REF) protection for alternator. [10]

Q.3

- A) Explain construction & working principle of SF6 circuit breaker. [10]
- B) Explain construction & working principle of HRC fuse. [10]

Q.4

- A) Explain construction & working principle of induction disc relay. [10]
- B) Differentiate between static & electromagnetic relay. [10]

Q.5

- A) Explain percentage differential protection scheme for star-delta connected transformer. [10]
- B) Explain the differential protection scheme provided for bus zones. [10]

Q.6 Write a note on **any two**. [10*2]

- A) Substation layout.
- B) Numerical relay.
- C) Phase comparison carrier current protection.