

Duration : 3 Hours

Total Marks : 80

Instructions:

1. Question No. 1 is compulsory
2. Attempt **any three** questions out of remaining **five** questions.
3. Assume suitable data, if necessary and justify the same.

Q1. Answer the following questions.

20

- a) Mention at least five differences between a fuse and a circuit breaker. **5**
- b) Explain the properties of SF₆ gas that makes it suitable for arc quenching. **5**
- c) Explain time-graded protection of radial feeder. **5**
- d) What are the advantages and disadvantages of static relays over electromagnetic relays. **5**

- Q2. a) Draw and explain construction and working of Pantograph Isolators. **10**
Q2. b) Explain the working and cut off characteristics of HRC Fuse. **10**

- Q3. a) Explain with neat diagram, the construction and working of Vacuum Circuit Breaker. **10**
Q3. b) Explain the construction and working principle of Induction Disc Relay. **10**

- Q4. a) Explain the differential protection given to delta-star power transformer. **10**
Q4. b) What are the desirable qualities of protective relays? Explain in detail. **10**

- Q5.a) What is the working principle of distance relays? Differentiate between different types of distance relay. **10**
Q5.b) State various abnormal conditions of induction motor. Explain motor protection against single phasing. **10**

- Q6. a) Explain the three-step protection provided for transmission line. **10**
Q6. b) Write a short note on Numerical Relay. **10**