

B.E. Eighth Semester (Electrical & Electronics) (CGS)
10412 : Switchgear & Protection : 8 EX 02

P. Pages : 2

Time : Three Hours



AU - 3032

Max. Marks : 80

- Notes :
1. Answer **three** question from section A and **three** question from section B.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Diagrams and Chemicals equations should be given wherever necessary.
 5. Illustrate your answer necessary with the help of neat sketches.
 6. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. a) What do you mean by transient recovery voltage (TRV)? Derive an expression for RRRV. **8**
b) Explain how current interruption takes place in AC circuit breaker. **6**

OR

2. a) Describe the following term's in details, **6**
a) Fault clearing time,
b) Breaker time,
c) Relay time
b) Explain in detail various types of auto reclosing techniques? **8**
3. a) Write short notes on low voltage HRC fuse. **7**
b) Describe, the constructions, working and application of air blast circuit breaker. **6**

OR

4. a) Describe the construction and working of minimum oil circuit breaker along with merit, demerit & application. **6**
b) Explain the points to be considered while selecting a fuse. How discrimination between two fuses & overcurrent protective device is done. **7**
5. a) Draw and explain miniature circuit breaker. **7**
b) What is the importance of testing of circuit breaker. Describe direct testing a breaker in a testing station. **6**

OR

6. a) Explain the properties of SF₆ gas and hence describe the construction, working and application of puffer type SF₆ circuit breaker. **6**
b) Explain the construction and working of vacuum circuit breaker. **7**

SECTION - B

7. a) Draw & explain various characteristics of protective relay. 7
b) Explain the working of simple differential scheme for internal and external fault. What are the drawback's of this scheme. 7

OR

8. a) With suitable example describe the primary and back-up protection. 7
b) Explain the essential qualities of protective relays. 7
9. a) Write short notes on impedance protection and on R-X diagram. 6
b) Draw and explain Merz-price balanced protective scheme as applied to the protection of 3- ϕ transmission line. 7

OR

10. a) Explain the three stepped distance protection of transmission line in detail. 6
b) Explain the protection scheme for radial, parallel and ring main feeder. 7
11. a) Describe the Buchholz relay and discuss its merits & demerits. 6
b) Explain the synthesis of MHO relay using static phase comparator. 7

OR

12. a) What are the abnormal conditions in a large synchronous generator against which protection is necessary. 7
b) Draw and explain in detail the block diagram of a static relay and give the applications. 6
