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Question Paper Code : 31410

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Seventh Semester

Electrical and Electronics Engineering

EE 2402/EE 72/10133 EE 702 — PROTECTION AND SWITCHGEAR

(Regulation 2008/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write the sources of fault power.
2. List out the duties of fault limiting reactors.
3. What are the types of fuses?
4. Write the function of under frequency relay.
5. What are the different types of zones of protection?
6. Write the inference of resistance switching.
7. What is meant by autoreclosing?
8. Write the function of isolating switch.
9. List out the merits of static relay.
10. Write the ratings of the circuit breaker.

PART B — (5 × 16 = 80 marks)

11. (a) (i) With neat block diagram, explain the construction and operating principle of electromagnetic relay. (8)
- (ii) Describe the operation of over current relay with directional feature. (8)

Or

- (b) (i) Discuss the importance of the protective scheme employed against lightning and switching surges. (8)
- (ii) Enumerate the basic ideas of insulation coordination. (8)

12. (a) Describe the operating principles and characteristics of impedance and mho relays. (16)

Or

- (b) Explain the operation of
- (i) Negative sequence relay
 - (ii) Static relay. (8 + 8)
13. (a) (i) Describe the differential protective scheme of transformer. (8)
- (ii) Enumerate the protective scheme employed for the bus bar. (8)

Or

- (b) With neat sketches, explain the different types of protective schemes for transmission lines. (16)
14. (a) (i) Derive the expressions for restriking and rate of rise of recovery voltages. (8)
- (ii) Explain the operation of zero crossing in the circuit breaker. (8)

Or

- (b) Write brief notes on:
- (i) Current chopping.
 - (ii) Interruption of capacitive current. (8 + 8)
15. (a) With neat sketches, explain the construction and operating principle of air break and minimum oil circuit breaker. (16)

Or

- (b) (i) Compare the performance, characteristics and applications of different types of circuit breakers. (8)
- (ii) Describe the various testing procedures of circuit breaker. (8)
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