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**Question Paper Code : 11246**

B.E/B.Tech. DEGREE EXAMINATION, MAY/JUNE 2014.

Seventh Semester

Electrical and Electronics Engineering

080280061 — POWER SYSTEM PROTECTION AND SWITCHGEAR

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define the term PSM in relays.
2. What is a negative sequence relay.
3. Write the common non faults that occur in transformer.
4. Write the methods of common protection for transmission lines.
5. Define Rate of Rise of recovery Voltage.
6. What is current chopping?
7. What is a Vacuum circuit breaker?
8. Define the term Making Capacity of a circuit breaker.
9. Write the causes for over voltages in power system.
10. What is insulation co-ordination?

PART B — (5 × 16 = 80 marks)

11. (a) Explain in detail about the
  - (i) Various zones of protection and (8)
  - (ii) Essential qualities of protection. (8)

Or

- (b) Describe the working of following relays.
- (i) Under frequency relay (8)
  - (ii) Negative sequence relay. (8)

12. (a) Explain the working of Buchholz relay with neat diagram.

Or

- (b) Describe the following in detail.
- (i) Potential transformer. (8)
  - (ii) Current transformer. (8)

13. (a) Explain the arc extinguishing methods in circuit breakers.

Or

- (b) Explain in detail about the
- (i) Resistance switching (8)
  - (ii) DC circuit breaking. (8)

14. (a) Explain the working of SF<sub>6</sub> circuit breaker with neat diagram.

Or

- (b) A circuit breaker is rated 2500 A, 1500 MVA, 33 kV, 3 sec, 3-phase oil circuit breaker. Determine :
- (i) The rated normal current (4)
  - (ii) Breaking current (4)
  - (iii) Making current (4)
  - (iv) Short time rating current. (4)

15. (a) Explain the following protection scheme against the over voltages with neat diagram.

- (i) Overhead Ground Wires (8)
- (ii) Expulsion type lightning arrester. (8)

Or

- (b) Explain in detail about the insulation co-ordination for the protection scheme of sub-station.
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