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Question Paper Code : 21516

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Seventh Semester

Electrical and Electronics Engineering

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

(Regulations 2008/2010)

(Common to PTEE 2402/10133 EE 702 Protection and Switchgear for
B.E. (Part-Time) Sixth Semester Electrical and Electronics Engineering –
Regulations 2009/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the difference between a short circuit and an overload?
2. Why earth wire is provided in overhead transmission lines?
3. In what way a distance relay is superior to over current protection for protection of transmission lines?
4. Where is negative phase sequence relay employed?
5. What are the short comings of differential protection scheme as applied to power transformer?
6. Give the examples for unit and non-unit systems of protection.
7. What is meant by making capacity of a circuit breaker?
8. Why current chopping is not common in oil circuit breakers?
9. How does a circuit breaker differ from a switch?
10. Name the materials used for contacts of vacuum circuit breakers.

PART B — (5 × 16 = 80 marks)

11. (a) Explain different types of earthing the neutral point of the power system. Derive an expression for the reactance of the Peterson coil in terms of capacitance of the Protected line.

Or

- (b) (i) Explain the overlapping of protective zones with neat sketch. (9)
(ii) Classify the different faults in power system. Which of these are more frequent. (7)
12. (a) Explain the Principle of working of distance relays. Describe with neat sketches the following types of relays
(i) impedance relay.
(ii) Admittance relay
(iii) Reactance relay.

Or

- (b) With neat diagram explain the construction and operation of induction type directional over current relay.
13. (a) Explain in detail the carrier current protection schema. Describe carrier phase comparison relay with neat sketches.

Or

- (b) Why is the harmonic restrained differential relay required to be used for protecting a large size transformer? Describe the construction and working of such a relay.
14. (a) Discuss in detail the different types of rating of circuit breaker bringing out clearly their physical significance.

Or

- (b) Explain the following terms in detail :
(i) Resistance switching.
(ii) Current chopping
(iii) Interruption of capacitive current.
15. (a) Explain the construction, operating principle and application of Minimum oil circuit breakers.

Or

- (b) Describe the construction, operating principle and application of a SF₆ circuit breaker.