Code: EE7T3

IV B.Tech - I Semester – Regular/Supplementary Examinations
October - 2019

SWITCHGEAR PROTECTION & CARRIER COMMUNICATION
(ELECTRICAL & ELECTRONICS ENGINEERING)

Duration: 3 hours   Max. Marks: 70

PART – A

Answer *all* the questions.   All questions carry equal marks

$$11 \times 2 = 22 \text{ M}$$

1.

a) State any two advantages of SF6 circuit breaker.

b) Define re-striking voltage.

c) Write any two types of numerical relays.

d) Label the various parts of a balanced beam relay.

e) List any two types of circuit breakers.

f) List any two ratings of circuit breaker.

g) What is the meaning of DMT relays?

h) List any two differential relays.

i) Spell any two type of scheme(s) utilized for transmission line protection.

j) Recall any two important stator faults, significant for generator protection.

k) Classify grounded and ungrounded neutral systems (any two points).

PART – B

Answer any *THREE* questions. All questions carry equal marks.

$$3 \times 16 = 48 \text{ M}$$

2. a) Explain current chopping with a neat diagram.   8 M

   b) Explain the operating principle of a Minimum oil circuit breaker.   8 M

3. a) Explain the construction and principle of operation of an induction disc relay.   8 M

   b) Compare numerical and static relays.   8 M

4. a) Explain the construction and operating principle of a percentage differential relay.   8 M

   b) Compare the characteristics of Electromagnetic type distance relays.   8 M

5. a) A 13 kV, 102 MVA alternator is provided with differential protection. The percentage of winding to be protected against phase to ground fault is 13 %. The relay is set to operate when there is 16% out of balance current. Determine the value of resistance to place in the neutral to ground connection.   8 M

b) Illustrate the impedance relay based three zone distance
relay scheme for the protection of transmission lines.

8 M

6. a) Explain the protection scheme for transmission lines
against travelling waves.   8 M

b) Explain any one method of neutral grounding.   8 M