Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(EE) PT (Sem.–7)

POWER SYSTEM II (SWITCHGEAR & PROTECTION)

Subject Code : BTEE-602

Paper ID : [74091]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Q1. Write briefly :

a. Define the terms (i) pick up value (ii) Reset value.

b. Define selectivity of protective relaying.

c. Define the term arcing ground.

d. Compare Static with Electromagnetic relay.

e. What is power swing?

f. Classify the type of relays used to protect transmission lines.

g. Define the term pilot with reference to power line protection.

h. Define under reach.

i. Define the term *"rate of rise of recovery voltage"*.

j. Differentiate a.c. and d.c. circuit breaking.

SECTION-B

Q2. Explain with the help of neat sketch the working principle and operation of attracted armature type electromagnetic relay.

Q3. Discuss the protection employed against loss of excitation of an alternator.

Q4. Describe the construction and principle of operation of metal oxide surge arrester.

Q5. Explain carrier aided distance protection in brief.

Q6. Describe the construction and working of Buchholz relay.

SECTION-C

Q7. a. Explain the characteristics of Reactance relay on R-X diagram with the help of torque equation. How can it be implemented for three-zone protection of transmission line?

b. Explain simple differential protection scheme and enumerate its drawbacks. Why is it called unit protection?

Q8. a. Explain with the help of neat sketch, the working principle and operation of negative sequence relay.

b. A 3 phase transformer having line voltage ratio of 440 V / 11 kV is connected in star - delta. The protection transformer on the LV side has a ratio of 500 / 5. What must be the ratio of the protection transformer connected on HV side?

Q9. With a neat block diagram, explain the construction, operating principles and merits of air blast circuit breaker.