Roll No. | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(EE) (Electrical & Electronics) (2011 Onwards)
B.Tech.(Electrical Engineering & Industrial Control) (2012 Onwards)
(Sem.–6)

POWER SYSTEM-II
(Switch gear & Protection)

Subject Code : BTEE-602
Paper ID : [A2335]

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTION 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 has to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.**

SECTION-A

1. **Answer briefly :**

   a. What are the causes of over voltages?

   b. List the merits and demerits of solid grounding.

   c. What is meant by drop off / pick up ratio?

   d. Write the function of earth fault relay.

   e. Define the term burden on CT.

   f. What are the causes of over speed and how alternators are protected from it?

   g. What is current grading of relays?

   h. Differentiate under reach and over reach.

   i. Differentiate isolator and circuit breaker.

   j. What do you mean by current chopping?

SECTION-B

2. Compare the time-current characteristics of inverse, very inverse, and extremely inverse over current relays. Discuss their area of application.

3. Describe the differential pilot wire method of protection of transmission line.

4. Describe the construction and principle of operation of valve type lightning arrester.

5. Discuss and compare the various methods of neutral earthing.

6. Describe the construction and working of Buchholz relay.

SECTION-C

7. Explain the properties of vacuum, arc phenomenon, constructional details, working principle, merits and applications of vacuum circuit breakers.

8. Explain the principle of distance relays stating clearly the difference between impedance relay, reactance and mho relay. Indicate the difference on R-X diagrams and their suitability for protection of different lengths of transmission line.

9. a. What type of a protective device is used for the protection of an alternator against overheating of its (i) stator (ii) rotor? Discuss them in brief.

   b. A 5000KVA, 6600v star connected alternator has a synchronous reactance of 2 Ω per phase and 0.5 Ω resistance. It is protected by Merz prize balanced current system, which operates when the out of balanced current exceeds 30% of the load current. Determine what proportion of the alternator winding is unprotected if the star point is earthed through a resistor of 6.5Ω?