| BIEE-023 |

B.Tech. – VIEP – ELECTRICAL ENGINEERING (BTELVI)

Term-End Examination

⊓⊐575

June, 2019

BIEE-023 : SWITCHGEAR AND PROTECTION

Time : 3 hours   *Maximum Marks : 70*

*Note : Attempt any **five** questions. All questions carry equal marks. Use of scientific calculator is allowed.*

1. (a)   Explain the phenomenon of wave propagation on transmission lines.

    (b)   Explain the construction and working of air break circuit breaker.   *2×7=14*

2. (a)   Explain different methods of arc extinction in a circuit breaker.

    (b)   Explain the phenomenon of current chopping in a circuit breaker.   *2×7=14*

3. Discuss in brief the following :   *4+5+5=14*

    (a)   Recovery Voltage

    (b)   Restriking Voltage

    (c)   RRRV

4. (a) Give the various types of overcurrent relays and give their approximate characteristics.

   (b) What is distance relay ? How are directional features added with overcurrent relays ? 2×7=14

5. (a) Distinguish between directional relays and differential relays.

   (b) Describe the construction and working of Buchholz relay. 2×7=14

6. (a) Compare primary and secondary protection schemes with suitable examples.

   (b) Explain carrier current protection of transmission line. 2×7=14

7. In a short circuit test on a circuit breaker, the following data was obtained :

   (i) Time to reach the peak restriking voltage − 55 μs

   (ii) The peak restriking voltage 100 kV

   Determine the following : 2×7=14

   (a) The natural frequency of the circuit

   (b) Average rate of rise of restriking voltage

8. Write short notes on any *two* of the following : 2×7=14

   (a) Overload Protection of Alternators

   (b) Static Relays

   (c) SF_6 Circuit Breaker