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BIEE-023

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

Term-End Examination

June, 2015 00756

BIEE-023 : SWITCHGEAR AND PROTECTION

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **five** questions. All questions carry equal marks.*

1. (a) Define the following terms as applied to protective relaying : *8*

(i) Selectivity

(ii) Speed

(iii) Plug setting multiplier

(iv) Time setting multiplier

(b) What are the requirements of protective relaying ? What do you mean by protective zones in a protective relaying system ? *4+2*

2. (a) Explain, with the help of a neat sketch, the construction and working of a bulk oil circuit breaker. *7*

(b) What are the advantages and disadvantages of a minimum oil circuit breaker over bulk oil circuit breaker ? *7*

3. (a) Draw a generalised wave shape of a lightning stroke. With the help of a neat sketch, explain the wave propagation on a transmission line. 7

(b) Explain the phenomenon of arcing ground. How can arcing ground be minimized ? 7

4. (a) Explain the construction and working of induction type over current relay with the help of a neat diagram. 7

(b) What is the need of directional relay ? Explain the basic principle of directional relay. 7

5. (a) Draw and explain the Merz-Price protective scheme for an alternator. 7

(b) Give the merits and demerits of static relays over digital & numerical relays. 7

6. (a) Explain the terms "Restriking voltage and rate of rise of restriking voltage". What is their significance in operation of a circuit breaker ? 7

(b) Explain Buchholz's relay used in protection of a power transformer, with the help of a neat sketch. 7

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

(a) Insulation co-ordination

(b) Distance relay

(c) Protection of bus bars
