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BIEE-023

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

Term-End Examination

00825 **December, 2014**

BIEE-023 : SWITCHGEAR AND PROTECTION

Time : 3 hours *Maximum Marks : 70*

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

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

(i) Pickup value

(ii) Current setting

(iii) Sensitivity

(iv) Reliability

(b) Explain the significance of rate of rise of recovering voltage (RRRV) in case of an oil circuit breaker. Explain briefly current chopping. 3+3

2. (a) What are the different causes of over voltage in a power system ? Explain any two causes in brief. 7

(b) How does a surge diverter differ from surge absorber ? Draw their neat sketches. 7

3. (a) With the help of a neat sketch, explain the construction and working of a directional overcurrent relay. 7

(b) Give the advantages and disadvantages of static relays over conventional relays. 7

4. (a) With the help of a neat sketch of Buchholz's relay, explain its construction and working. 7

(b) What do you mean by primary and back-up protection in a power transmission line ? Briefly justify the use of back-up protection. 7

5. (a) What is the significance of insulation co-ordination in a power system ? 7

(b) How does directional relay differ from non-directional relay ? Where are they used in a power system ? 7

6. (a) With the help of a neat sketch, explain the frame leakage protection of bus bar in detail. 7

(b) What are the different protective schemes employed in the protection of DG sets and alternators ? Draw a neat sketch of any one of the protective schemes of alternator. 7

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

(a) Lightning stroke and protection

(b) Under voltage/frequency relays

(c) SF_6 circuit breaker
