

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

00177

Term-End Examination

June, 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 the following : 8
(i) Selectivity
(ii) Speed
(iii) Sensitivity
(iv) Reliability
with respect to protective relays.
- (b) What is the principle of distance relaying ?
Explain with neat diagram. 6
2. (a) Draw a neat diagram of SF₆ circuit breaker
and explain its operation. 8
- (b) State the technical specifications of typical
vacuum circuit breaker. 6
3. (a) Explain clearly with neat diagram different
types of lightning arresters. 10
- (b) What are different causes of overvoltage in
power systems ? 4

4. (a) Discuss about differential protection scheme for transformers. 10
- (b) What is the necessity of Insulation coordination ? 4
5. (a) Explain with neat circuit diagram the fault bus protection scheme. 10
- (b) Explain in brief about basic concepts of insulation levels. 4
6. (a) Define the following terms : 6
- (i) RRRV
- (ii) Current chopping
- (iii) Pickup current
- (iv) Reset current
- (b) Draw a neat sketch of Induction type directional overcurrent relay and explain its working. 8
7. Write short notes on any *two* of the following : $2 \times 7 = 14$
- (a) Testing of circuit breakers
- (b) Protection scheme for motors
- (c) Wave propagation on transmission lines
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