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BIEEE-006

DIPLOMA IN ELECTRICAL ENGINEERING

(DELVI)

Term-End Examination

00056

June, 2015

BIEEE-006 : SWITCHGEAR AND PROTECTION

Time : 2 hours *Maximum Marks : 70*

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

1. Explain the following terms related to a relay : $4 \times 2\frac{1}{2} = 10$

(a) Selectivity

(b) Discrimination

(c) Sensitivity

(d) Reliability

2. Explain the construction and operation of an electromagnetic directional relay. Also give the application of over-current and directional relay. *8+2=10*

3. Draw a labelled connection diagram of directional relay for 30° and 90° connection. *5+5=10*

4. What do you understand by carrier current protection of transmission line ? Explain the basic apparatus used for power line carrier system. *10*

5. Explain with the help of a diagram Merz-Price protection for a delta-star transformer. Also give the advantage of this protective scheme. *8+2=10*

6. Explain the construction and working of a gas actuated relay used in power transformer protection. Where is this type of relay connected in a transformer ? *8+2=10*

7. Determine the time of operation of a 5 amp, 3 second over-current relay having a current setting of 125% and time setting multiplier of 0·6 connected to supply circuit through a 400/5 current transformer when current during fault flows through the circuit is 4000 amperes. Assume for plug setting a multiplier of value 8, the time of operation is 3·5 seconds. *10*

8. What are the different theories of current interruption ? Define RRRV. Briefly explain the construction and working of a minimum oil circuit breaker with the help of a neat sketch. *2+2+6=10*

9. Explain the construction and working of a SF_6 circuit breaker. Give its advantages and disadvantages. *6+4=10*

10. Write short notes on any ***two*** of the following : *2×5=10*

(a) Current Chopping

(b) Negative Sequence Protection

(c) Bus Bar Protection

(d) Mho (℧) Relay Characteristics