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B. Tech. (EE) 6th (Elective-III) Semester

(G Scheme) Examination, July-2022

POWER SYSTEM PROTECTION

Paper-PEC-EE-06-G

Time allowed : 3 hours]

[Maximum marks : 75

Note : Attempt five questions in all, selecting one question from each unit. Question No. 1 is compulsory. All questions carry equal marks.

1. (a) List the essential qualities of a protective relay.
- (b) State the performance Requirements of Protection System.
- (c) What is relay ? Explain its purpose.
- (d) List various types of circuit breakers.
- (e) What is a potential transformer ?
- (f) Define Recovery Voltage. 6×2.5

Unit-I

2. With a neat sketch, explain the construction and working principle of a reverse power or directional relay. 15
3. (a) Explain the phenomenon of current chopping. 7.5

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- (b) With a neat sketch, explain the recovery rate theory and energy balance theory of arc interruption in a circuit breaker. 7.5

Unit-II

4. (a) Write a note on over current relay coordination. 7.5
- (b) List the advantages, disadvantages and applications of Buchholz relay. 7.5
5. Explain the over current and earth fault protection applicable to transformer. 15

Unit-III

6. (a) Write a short note on Bus bar arrangement schemes. 7.5
- (b) Write a note on relay testing. 7.5
7. Explain the simulation of transients using Electro-magnetic transient program. 15

Unit-IV

8. (a) State the applications of Wide-Area Measurement systems (WAMS) for improving protection systems. 7.5

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- (b) Write a short note on phasor measurement units. 7.5
9. (a) Explain the term out-of-step protection applicable to system protection. 7.5
- (b) Write a short note on synchro-phasors. 7.5

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