FIRST SEMESTER M. TECH DEGREE EXAMINATION

Electrical and Electronics Engineering

(Power Systems)

04EE 6411—Advanced Relaying and Protection

Max. Marks : 60   Duration: 3 Hours

PART A

Answer All Questions

Each question carries 3 marks

1. What do you mean by zone of protection of a relay?
2. What are current transformers.
3. What is Walsh-Hadamard Transform technique?
4. What is time multiplier setting.
5. Why IDMT relays are widely used for overcurrent protection?
6. What are the important operating techniques employed for carrier current protection?
7. Draw the functional diagram of numerical relays.
8. Explain the principle of out of step tripping relay.

PART B

Each question carries 6 marks

9. Describe the functional characteristics of protective relays.

OR

10. A 1000/5, 50 Hz bar primary type current transformer has secondary burden of 1.5 Ω (non-inductive). Calculate the flux in the core and the ratio error at rated condition of the current transformer. Assume iron loss in the core to be 1.5 watts. Neglect leakage flux and magnetizing current.

11. Explain the operating principle and construction of thermal relays.

OR

12. Explain the duality between amplitude and phase comparators.

13. Explain the operating principle and characteristics of differential relays.

OR

14. Explain the operating principle of impedance relays and reactance relays.

15. Describe with a neat sketch, the percentage differential protection of generator.

OR

16. Explain the protection against stator interturn faults of a generator.

17. Explain the operating principles employed for wire pilot protection.

OR

18. Explain the characteristics and architecture of numerical relays.

19. Explain the principle of operation of single-shot reclosing relays.

OR

20. Draw the schematic diagram of synchronism check relay and explain phasing voltage synchronism check characteristic.