1. Which are the errors in single phase energymeters?
2. Explain transient performance of CVT?
3. What are temperature scanners?
4. Describe any one method of pressure measurement in hydroelectric power plant?
5. Explain level measurement technique in hydroelectric power plant?
6. Explain flame monitoring?
7. Explain neutron flux measurement in nuclear power plant?
8. How is reactor safety ensured in nuclear power plants?
9. What is a numerical relay? What are its advantages over conventional type relays?
10. Compare a numerical relay with an electromagnetic relay?

PART B

MODULE 1

11. a) Explain the theory of CT with the help of equivalent circuit and phasor diagram and derive the expressions for actual transformation ratio and phase angle error (10)

b) A 100/5 A, 50 Hz current transformer has a bar primary and a rated secondary burden of 12.5 VA. The secondary winding has 196 turns and a leakage inductance of 0.96 mH. With a purely resistive burden at rated full load, the magnetization mmf is 16 A and the loss excitation requires 12 A. Find the ratio and phase angle errors. (10)
12 Explain the construction, theory and operation of single phase induction type energymeter. (20)

MODULE 2

13 Explain any two methods for flow measurement in hydroelectric power plants in detail. (20)

OR

14 a) Explain temperature measurement methods in hydroelectric power plants (10)

b) What are the methods for measurement of vibration in hydroelectric power plants? 10

MODULE 3

15 a) Explain steam turbine instrumentation in thermal power plants. (20)

OR

b) Explain reactor power level and coolant measurements in nuclear power plants. (20)
MODULE 4

16 a) Explain single input, two input and multi input relays? (10)
   b) Explain the theory of induction type electromagnetic relays? (10)

OR

17. a) Draw the block diagram of a numerical relay and briefly describe the functions of its various components? 10

18. b) What are the different types of electromagnetic relays? Discuss their field of applications? 10