



--	--	--	--	--	--	--	--	--	--

P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Eighth Semester, B.E. – Electrical and Electronics Engineering

Semester End Examination; June - 2016

Modern Power System Protection

Time: 3 hrs

Max. Marks: 100

Note: Answer any FIVE full questions, selecting at least TWO full questions from each part.

PART - A

- | | | |
|------|---|----|
| 1 a. | Describe the construction of Static protective relays with block diagram. | 10 |
| | b. Name different types of static relays. Discuss the use of hall crystals as static relays. | 10 |
| 2 a. | Derive general equation for an Amplitude comparator and obtain MHO characteristics from it. | 10 |
| | b. Explain the principle of duality between amplitude and phase comparators with necessary vector diagrams. | 10 |
| 3 a. | Describe the working principle of circulating current type rectifier bridge comparator with necessary diagrams. | 10 |
| | b. What are different types of phase comparator? Describe the principle of operation of Zener diode phase comparator. | 10 |
| 4 a. | Explain the construction of numerical relay with block diagram. | 10 |
| | b. With respect to numerical relay, explain : | |
| | (i) Man machine Interface | 10 |
| | (ii) Information handling with substation monitoring system. | |

PART - B

- | | | |
|------|--|----|
| 5 a. | Describe the construction and principle of operation of definite time lag relay. | 10 |
| | b. Describe the construction and principle of operation of over voltage relay. | 10 |
| 6 a. | Explain the principle of operation of static timer relays with necessary circuit. | 10 |
| | b. Explain clearly 3-zone stepped distance relaying scheme to achieve fast and discriminative protection of transmission line. | 10 |
| 7 a. | Describe admittance relay and ohm relay characteristics used in distance relaying. | 10 |
| | b. What is distance relay setting? Explain zone-I settings used for distance relays. | 10 |
| 8 a. | Explain micro processor based over current relay protection scheme. | 10 |
| | b. Explain numerical transformer differential protection scheme. | 10 |

* * * *