6E6073

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6E6073

B. Tech. VI-Sem. (Main/Back) Exam., April/May-2016
Electrical & Electronics Engineering
6EX3A Switch Gear & Protection
Common with EE, EX

Time: 3 Hours **Maximum Marks: 80**

Min. Passing Marks (Main & Back): 26

Instructions to Candidates:-

*Attempt any **five questions,** selecting **one question** from **each unit.** All Questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly.*

Units of quantities used/ calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

UNIT-I

Q.1 (a) What is a 'static relay'? What are the merits & demerits of static relay? Also enumerate different static relays. [8]

(b) Comment on the duality between phase and amplitude comparator. [8]

OR

Q.1 (a) Explain the working principal of static directional over current relays. [8]

(b) Distinguish between definite time & inverse definite time static relays. [8]

UNIT-II

Q.2 (a) Briefly describe static differential relay schemes for single phase system. [8]

(b) Sketch the circuit diagram & working of differential protection of generator (delta connected). [8]

OR

Q.2 Discuss the application of the following distance relays with the help of their characteristics on R –X dig.

(a) Impedance relay [8]

(b) Mho relay [8]

UNIT-III

Q.3 (a) Describe basic apparatus & scheme of power line carrier system. [8]

(b) Explain effect of power swings on the performance of distance protection. [8]

OR

Q.3 (a) Explain the quadrilateral & elliptical relays. [8]

(b) What do you understand by out of step tripping? Discuss the operating principle of an out of step tripling relay. [8]

UNIT-IV

Q.4 (a) In a 132 kV, 3φ, 50hz power system, the line to ground capacitance is 0.02 μF and the inductance is 4 H

Calculate the following -

(i) Voltage appearing across the breaker pole when a magnetizing current of 5A (Inst. Value) is interrupted. [4]

(ii) Resistance to be connected across the contacts to eliminate the restriking voltage. [4]

(b) Explain the working phenomena of oil circuit breakers with its various types. [8]

OR

Q.4 (a) Explain the concept of electric arc and its characteristics. Also explain current zero interruption. [8]

(b) Explain the phenomena of current chopping & interruption of capacitive current for circuit breakers. [8]

UNIT-V

Q.5 (a) Discuss the construction & working of a SF_6 circuit breaker. [8]

(b) Briefly describe the block diagram & working principle of digital relay. [8]

OR

Q.5 Write short note on :

(a) Selection of circuit breakers [4]

(b) Rating of circuit breakers [4]

(c) Digital over current [4]

(d) Transmission line distance protection [4]
