6E3111

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B. Tech. VI-Sem. (Old Back) Exam., April/May-2016

Electronics Engineering

6EE 3 (O) Protection of Power Systems

EE, EX

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

Min. Passing Marks (Old Back): 24

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 materials permitted during examination.

1. NIL 2. NIL

UNIT-I

Q.1 (a) Explain the nature and causes of faults. Discuss the consequences of faults on a power system. [8]

(b) What do you understand by primary and back-up protection? Discuss various methods of providing back-up protection. [8]

OR

Q.1 (a) Explain the different types of P.Ts. with their areas of application. [8]

(b) Write short note on "Transient errors in CT and CVT". [8]

UNIT-II

Q.2 Explain, how inverse time over-current relay is different in operation from definite time over-current relay. Discuss working of static over current relay with block diagram. [16]

OR

Q.2 (a) With the help of block diagram explain the working of directional static over-current relay. [8]

(b) How the 'parallel feeders' and 'ring mains' are protected? Explain. [8]

UNIT-III

Q.3 Explain any two protective schemes which are used for the protection of stator of a generator get. [16]

OR

Q.3 How the rotor of a generator get is protected by 'Field ground-fault protection' system and 'Loss of excitation protection' system? Explain with diagram. [16]

UNIT-IV

Q.4 (a) What is Buchholz relay? Which equipment is protected by it? Discuss its working principle. [2+2+4=8]

(b) What is frame leakage protection? Explain its working principle and filed of application. [8]

OR

Q.4 (a) What is magnetizing inrush current? What measures are taken to distinguish between the fault current and magnetizing inrush current? [8]

(b) Discuss the protective scheme which protects the transformer against faults but does not operate in case of magnetizing inrush current. [8]

UNIT-V

Q.5 (a) Explain the points to be considered while selecting a fuse. Discriminate, fuses and over current protective devices. [8]

(b) What are the abnormal conditions in a large induction motor against which protection is necessary? [8]

OR

Q.5 In what way is distance protection superior to over-current protection for transmission lines? Explain operating principle and characteristics of on electromagnetic impedance relay. [16]