

Roll No.

24319

B. Tech. 6th Semester (EEE)

Examination – May, 2019

POWER SYSTEMS – II

Paper : EE-312

Time : Three Hours] [Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting *one* question from each Section. Question No. 1 is *compulsory*.

1. (a) What is current chopping in circuit Breaker ? 5
- (b) Explain the term RRRV. 5
- (c) Define : 5
 - (i) Over reach
 - (ii) Selectivity

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P. T. O.

(iii) Sensitivity

(iv) Pick up level

(d) Explain zone of protection in brief. 5

SECTION – A

2. What do you mean by symmetrical components of unbalance phasor ? Deduce the expression for symmetrical components. 20

3. A 25 MVA, 13.2 KV alternator with solidly grounded neutral has a subtransient reactance of 0.25 PU, the negative & zero sequence reactance's are 0.35 and 0.1 PU. respectively. A single line to ground fault occurs at the terminal of an unloaded alternator; determine the fault current and the line to line voltages. 20

SECTION – B

4. (a) Explain theory of arc interruption in circuit breaker. 10
- (b) Explain the terms : 10
 - (i) Symmetrical breaking current
 - (ii) Asymmetrical breaking current and
 - (iii) Making current

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5. Describe the construction, principle of operation and application of a vacuum circuit breaker. 20

SECTION – C

6. (a) What is meant by Primary protection and back up protection? 10
(b) Write short note on the time-current characteristics of an over current relay. 10
7. An IDMT over current relay rated 5 Amp has a current setting of 150% and has a time-Multiplier setting of 0.8. The relay is connected in the current through a CT having ratio 400/5. Calculate the time of operation of the relay if the circuit carries a fault current of 4800 Amp. Assume the relay to have 2.2 sec. IDMT characteristics. 20

SECTION – D

8. (a) Compare a static relay with electromagnetic relays. 10
(b) Explain rectifier type relays with neat sketch. 10

9. (a) Discuss about phase and amplitude comparators in detail. 15
(b) Write short note on application of computers in power system protection. 5