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## Question Paper Code : X 60511

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020  
Seventh Semester

Electrical and Electronics Engineering  
EE 2402/EE 72/10133 EE 702 – PROTECTION AND SWITCHGEAR  
(Regulations 2008/2010)

(Common to PTEE 2402/10133 EE 702 – Protection and Switchgear for B.E.  
(Part-Time) - Sixth Semester – EEE – Regulations 2009/2010)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Write the effects of power system faults.
2. Enumerate the significance of backup protection.
3. What are the necessary conditions for two alternating fluxes acting on a common rotor
  - a) to produce some torque
  - b) to produce maximum torque ?
4. What is meant by differential relay ?
5. What are the short comings of differential protection scheme as applied to power transformer ?
6. Give the examples for unit and non-unit systems of protection.
7. Give the two methods of arc interruption.
8. What is RRRV ?
9. List out the merits of static relay.
10. Write the ratings of the circuit breaker.

**PART – B****(5×16=80 Marks)**

11. a) Write short note on the following :
- i) Various principles of power system protection **(6)**
  - ii) Power system earthing **(5)**
  - iii) Insulation co-ordination. **(5)**
- (OR)
- b) What are the causes of over voltages ? Explain the protection against over voltages due to lightning and switching surges. **(16)**
12. a) Draw and explain about differential protection of transmission lines. **(16)**
- (OR)
- b) Explain :
- i) Static Relay **(8)**
  - ii) Negative sequence relay. **(8)**
13. a) i) Describe the differential protective scheme of transformer. **(8)**  
ii) Enumerate the protective scheme employed for the bus bar. **(8)**
- (OR)
- b) With neat sketches, explain the different types of protective schemes for transmission lines. **(16)**
14. a) Discuss in detail the different types of rating of circuit breaker bringing out clearly their physical significance.
- (OR)
- b) Explain the following terms in detail :
- i) Resistance switching **(5)**
  - ii) Current chopping **(5)**
  - iii) Interruption of capacitive current. **(6)**
15. a) With neat sketches, explain the construction and operating principle of air break and minimum oil circuit breaker. **(16)**
- (OR)
- b) i) Compare the performance, characteristics and applications of different types of circuit breakers. **(8)**  
ii) Describe the various testing procedures of circuit breaker. **(8)**
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