Reg.No. : | | | | | | | | | | | | |

Question Paper Code: U6302

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2024

Sixth Semester

Electrical and Electronics Engineering

21UEE602 - PROTECTION AND SWITCHGEAR

(Regulations 2021)

Duration: Three hours | Maximum: 100 Marks

PART A - (10 x 1 = 10 Marks)

1. Outline the unprotected zone CO1- U

   (a) Transient state (b) Subtransient state (c) Steady state (d) Dead spot

2. The grounding is generally at the _____ end CO1- U

   (a) Switching (b) Supply (c) terminal (d) none of these

3. Directional relays are based on flow of CO3- U

   (a) power (b) current (c) voltage wave (d) all of the above

4. Which one is most sensitive relay? CO3- U

   (a) Universal relay (b)Differential relay (c) Distance relay (d) Overcurrent relay

5. If the fault current is 2000 A, the relay setting is 50% and CT ratio is 400 : 5, then plug setting multiplier will be CO4- U

   (a) 10A (b) 15A (c) 25 A (d) 50A

6. A Merz-price protection is suitable for CO4- U

   (a) transformers (b)alternators (c)feeders (d)Transmission lines.

7. Static relays _____ moving parts. CO5- U

   (a) have (b) do not have (c) may/may not have (d)) none of these

8. The comparator which processes both magnitude and phase angle is CO5- U

   (a) Phase (b) Amplitude (c) Hybrid (d) None of the above

9. Low voltage circuit breakers have rated voltage of less than CO6- U
(a) 220 V (b) 400V (c) 1000 V (d) 10,000 V.

10. Interrupting medium in a contactor may be CO6- U
(a) air (b) oil (c) SF6 gas (d) Any of the above.

PART – B (5 x 2= 10Marks)

11. Relate "Primary Protection" with "Back-up Protection". CO1- U
12. Define PSM and TSM CO3- U
13. List the common methods used for line protection. CO4 -U
14. Outline the merits of Static Relay CO5- U
15. Explain current chopping. CO6 -U

PART – C (5 x 16= 80 Marks)

16. (a) Explain the different qualities require for protective relaying CO1 - U (16)

Or

(b) Explain the reasons leading to the general practice of earthling the neutral point and discuss the various methods of earthling. CO1 - U (16)

17. (a) Explain the construction, working & operating principle of Directional and Non – directional Induction type over current relay. CO3 - U (16)

Or

(b) Compare the operational features of impedance, reactance and MHO type relays with necessary diagrams CO3 - U (16)

18. (a) Make use of Buckholz relay for the protection of oil immersed transformers against all types of internal faults. CO4- App (16)

Or

(b) Develop a protection scheme for protection against the external faults occur in an induction motor CO4- App (16)

19. (a) Analyze the function of the measuring element in a Static relay, when the signal received from the input element is higher in magnitude than the set value and explain its operation. CO5- App (16)

Or

(b) Construct a protective model to demonstrate the situation at which condition a transmission line gets protected when it is adopted with the numerical distance protection CO5- App (16)

20. (a) Compare DC circuit breaking with AC circuit breaking in detail. CO6- App (16)

Or

(b) Make use of SF6 as arc quenching agent in a circuit breaker and describe its operation with neat diagram CO6- App (16)