

SGPD

1. Short circuit currents are due to:-
 - (a) single phase to earth fault
 - (b) phase to phase fault
 - (c) all the three phase to earth fault
 - (d) all the three phase short-circuited
 - (e) any of the above

2. The most serious consequence of a major uncleared short ckt fault could be
 - (a) blowing of fuse
 - (b) fire
 - (c) heavy voltage drop
 - (d) none of these

3. Which of the following results in a symmetrical fault?
 - (a) single phase to earth
 - (b) phase to phase
 - (c) All the three phase to earth
 - (d) Two phases to earth

4. Which portion of the transmission system is more prone to faults?
 - (a) Alternators
 - (b) Transformers
 - (c) overhead lines
 - (d) underground cable

5. Which portion of the power system is least prone to faults?
 - (a) Alternators
 - (b) Switchgear
 - (c) Transformers
 - (d) overhead lines

5. The magnitude of fault current depends ⁽²⁾ upon
- (a) Total impedance up to fault
 - (b) voltage at the fault point
 - (c) load current being supplied before occurrence of fault.
 - (d) both (a) and (b)

7. The most common type fault is
- (a) single phase to ground
 - (b) phase to phase
 - (c) Two phase to ground
 - (d) Three phase to ground

8. The maximum short circuit current occurs in the case of
- (a) Three phase bolted fault
 - (b) double line to ground fault
 - (c) line to line fault
 - (d) single line to ground fault

9. For a fault at the terminals of synchronous generator, the fault current is max^m for a
- (a) 3-phase fault
 - (b) 3-phase to ground fault
 - (c) line to ground fault
 - (d) line to line fault

10. A 25 MVA, 33 kV transformer has a per impedance of 0.9. The per unit impedance at a new base 50 MVA at 33 kV would be
- (a) 10.4
 - (b) 12.2
 - (c) 14.4
 - (d) 16.2

11. The per unit value of a $4\ \Omega$ resistor at 100 MVA base and 10KV base voltage is

- (a) 2 pu, (b) 4 pu, (c) 0.4 pu, (d) 40 pu

12. The per unit impedance Z_{pu} in a 3-phase system is

(a) $\frac{Z_{ohms} \times (MVA)_B}{(KV)_B^2}$

(b) $\frac{Z_{ohms} \times (KV)_B^2}{(MVA)_B}$

(c) $\frac{1000 X (KV)_B}{\sqrt{3} I_B}$

(d) $\frac{1000 X (KV)_B}{I_B \times 10^6}$

13. A 75 MVA, 10KV synchronous generator has $X_d = 0.4$ pu. The X_d value (in pu) to a base of 100 MVA, 11 KVA is

(a) 0.578

(b) 0.279

(c) 0.412

(d) 0.44

14. A 10 KVA, 400V/200V single phase transformer with 10% impedance draws a steady short circuit current of

(a) 50 A, (b) 150 A, (c) 250 A, (d) 350 A

15. Series reactors are used to (9)
- (a) improve the transmission efficiency
 - (b) Improve the power factor of the power system
 - (c) improve the voltage regulation
 - (d) bring down the fault level within the capacity of the switchgear.

16. Current limiting reactors may be
- (a) air cooled air cooled
 - (b) oil immersed magnetically shielded
 - (c) oil immersed non-magnetically shielded
 - (d) any of the above

17. The symmetrical components are used in the fault analysis because
- (a) The number of equations becomes smaller
 - (b) The sequence networks do not have mutual couplings.
 - (c) The results are required in terms of symmetrical components

18. Symmetrical components are used in power system for the analysis of
- (a) ~~to~~ balanced 3-phase fault
 - (b) unbalanced 3 phase fault
 - (c) normal power system under steady conditions
 - (d) stability of system under disturbance.

19. In a star connected system without neutral grounding, zero-sequence currents are
- (a) zero
 - (b) phasor sum of phase currents
 - (c) same as rms value of phase currents
 - (d) same as peak value of phase currents

20. A balanced 3 phase system consists of
- (a) zero sequence currents only
 - (b) positive - sequence currents only
 - (c) negative and zero sequence currents
 - (d) zero negative and positive sequence currents.

21. The positive sequence current of a transmission line is
- (a) always zero
 - (b) $1/3$ of negative sequence current
 - (c) equal to negative sequence current
 - (d) 3 times negative sequence current.

22. In an untransposed three phase transmission line
- (a) The sequence network do not have mutual coupling
 - (b) A positive sequence current may cause a negative sequence voltage drop
 - (c) The sequence impedance matrix is diagonal.

23. For a fully transposed transmission line
- (a) positive, negative and zero sequence impedances are equal
 - (b) positive and negative sequence impedances are equal
 - (c) zero and positive sequence impedances are equal
 - (d) negative and zero sequence impedances are equal

24. In case of an unbalanced star-connected load supplied from an unbalanced 3 phase 3 wire system load currents will consist of

- (a) Positive - sequence components
- (b) negative - sequence components
- (c) zero sequence components
- (d) only (a) and (b)

25. In an unbalanced three phase system phase current $I_a = 1 \angle (-90^\circ)$ pu, negative sequence current $I_{b2} = 4 \angle (-150^\circ)$ pu, zero sequence current $I_{r0} = 3 \angle 90^\circ$ pu. The magnitude of phase current I_b in pu is

- (a) 1.00
- (b) 7.81
- (c) 11.55
- (d) 13.00

26. For an unbalanced fault, with paths for zero sequence currents, at the point of fault

- (a) the negative and zero sequence voltages are minimum
- (b) The negative and zero sequence voltage are maximum
- (c) The negative sequence voltage is minimum and zero sequence voltage is max^m
- (d) The negative sequence voltage is max^m and zero sequence voltage is minimum.

27. In case of single line to ground fault

- (a) all sequence networks are connected in parallel
- (b) all sequence network are connected in series
- (c) positive and negative sequence networks are connected in parallel
- (d) zero and negative sequence network are connected in series.

28. When a line to ground fault occurs the current in the faulted phase is 100 A. The zero sequence current in this case will be

- (a) zero
- (b) 33.3
- (c) 66.6
- (d) 100 A

29. Zero sequence fault current is absent when fault is

- (a) single line to ground fault
- (b) line to line ground fault
- (c) double line to ground fault
- (d) line to line

30. Zero sequence currents can flow from a line to transformer bank if the windings are in

- (a) grounded star / delta
- (b) delta / star
- (c) star / grounded star
- (d) delta / delta

81. Negative sequence reactance of a trans-⁽⁸⁾former is
- (a) equal to the positive sequence reactance
 - (b) larger than the positive sequence reactance
 - (c) smaller than the positive sequence reactance

32. If all the sequence voltages at the fault point in a power system are equal then the fault is a
- (a) three phase fault
 - (b) line to ground fault
 - (c) line to line fault
 - (d) double line to ground fault

33. The three sequence voltages at the point of fault in a power system are found to be equal. The nature of the fault is
- (a) L-G
 - (b) L-L-L

(c) L-L (d) L-L-G

34. The zero sequence current of a generator for line to ground fault is $j2.4$ pu then the current through the neutral during the fault is
- (a) $j2.4$ pu
 - (b) $j0.8$ pu
 - (c) $j7.2$ pu
 - (d) $j0.24$ pu

35. The line currents of a 3 phase power supply are

~~(a)~~ $I_R = 3 + j5A$ ~~(b)~~ $I_B = -2 - j1A$

~~(c)~~ $I_Y = 2 + j2A$

35. The zero sequence current will be
(a) $1 + j2A$ (b) $5 + j7A$
(c) $1 + j4A$ (d) $-2 - j1A$

36. Fuse have got advantages of
(a) cheapest type of protection
(b) inverse time current characteristic
(c) no maintenance
(d) current limiting effect under short
ckt conditions
(e) all of the above

37. The primary function of a fuse is to
(a) open the ckt
(b) protect the appliance
(c) protect the line
(d) prevent excessive currents from flow
through the ckt.
 (d)

38. The least expensive protection protector
for overcurrent in low voltage system
is
(a) rewirable fuse
(b) isolator
(c) circuit breaker
(d) air break switch

39. Arcing voltage will be the least
in case of
(a) carbon (b) copper (c) silver
(d) Tungsten

40. In circuit breakers the contact space⁽¹⁾ is ionized by

(a) field emission from the contact surface

✓ (b) Thermal emission from the contact surface

(c) Thermal ionization of gas

(d) any of the above