**Subject –Unit 4 FACTS General Consideration & Shunt Compensation**

**MCQ**

1) FACTS provides \_\_\_\_\_\_\_\_\_\_\_ a) **Power transfer capability and controllability** b) Phase sequence and comparability c) a) and b) d) None

2) K is \_\_\_\_\_\_\_\_\_\_\_ a) X/Xc b) 1/Xc c) X d) **Xc/X**

3) TSSC can be operated line \_\_\_\_\_\_ a**)** Continuousb) Discrete c) **Step** d) None

4) In tap changing transformers, the tapping are provided on \_\_\_\_\_\_\_\_\_\_ a) Secondary winding b) Primary winding c) Tertiary winding **d) High voltage winding**

5) Shunt compensation in an EHV line is used to \_\_\_\_\_\_\_\_\_\_ **a) Improve stability** b) Reduce fault level c) Improve voltage profile d) Substitute for synchronous phase modifier

6) Series capacitor is used in a transmission line to \_\_\_\_\_\_\_\_\_\_\_ **a) Compensate the voltage drop** b) Reduce line losses c) Improve load power factor d) None

7) The function of the series capacitor is simply to produce on appropriate at fundamental ac system frequency in with the transition the can a) Phase b) Same angle c) **Quadrature** d) None

8) In midpoint compensation Vsm and Vmr are \_\_\_\_\_\_\_\_\_\_ **a) Same** b) Different c) Unity d) None

9) TCSC is a combination of \_\_\_\_\_\_\_\_\_\_\_\_\_ a) Capacitor and thyristor valves b) Thyristor valve and TCR **c) Capacitor and TCR** d) Either capacitor or TCR

10) The most fast operation of compensator is \_\_\_\_\_\_\_\_\_ a) TSSC **b) TCSC** c) GCSC d) None

11) For desirable operation of a DC link without ground return, \_\_\_\_\_\_\_\_\_\_ link are most commonly used. a) Monopolar **b) Bipolar** c) Homopolar d) All of the above

12) Bipolar link has two conductors, \_\_\_\_\_\_\_\_\_\_ a**) One positive and other negative** b) One positive and other positive c) One negative and other negative d) Both are negative

13) Individual operation of firing pulses for each valve is the feature of \_\_\_\_\_\_\_

a) **IPC** b) EPC c) CCC d) VGC

14) The main advantage of inverse cosine control scheme is that \_\_\_\_\_\_\_\_\_\_ a) Avg. dc voltage across bridge varies linearly with the control voltage b) Avg. dc voltage across bridge becomes equal to the control voltage **c) The delay angle is nominally proportional to the inverse cosine of the control voltage** d) b) and c) only

15) In HVDC converter stations, the provision of SVC mainly helps to overcome \_\_\_\_\_ **a) Voltage instability** b) Under voltages c) Resonance frequency d) Harmonics

16) High speed reversal of power is possible in \_\_\_\_\_\_\_ a) Parallel system b) Radial system c**) Mesh system** d) Series system

17) SVC is a \_\_\_\_\_\_\_\_\_\_ device. a) **Variable reactance** b) Variable impedance c) Only reactive d) All of the above

18) The bypassing of the bridge can be done with the help of \_\_\_\_\_\_\_\_\_

a) Replacing a single valve in the arm

b) **Replacing both valve in same arm**

c) Activating a bypass pair in the bridge

d) Deactivating same arm from converter set

19) A commutation group is defined as, group of valves in which only \_\_\_\_\_\_\_\_\_ valves conducts.

**a) One** b) Two c) Three d) Four

20) \_\_\_\_\_\_\_\_\_\_ is a non-self clearing fault.

a) Commutation failure **b) Arc-through** c) Arc-back d) Misfire

21) The function of the series capacitor is simply to produce on appropriate at fundamental ac system frequency in with the transition the can

a) Phase b) Same angle **c) Quadrature** d) None

22.Ground return is used in the following link [ ]

a) Bi polar b) Homo polar c) Mono polar d) **both b&c**

23. The skin effect is \_\_\_\_ in DC Tr.line[**Not seen** ]

24. Stability of DC Tr. line is \_\_\_\_\_ of the distance of Transmission. [ ]

a) **Independent** b)Dependent c)not related d)none

25. The ground resistance is negligible for \_\_\_ [ ]

a**) AC currents** b)DC currents c)Both d)none

26. The voltage profile of DC lines vary with –**Line loading.**

27. The lowest order of harmonics in dc side of 6 pulse converter is :5

28. which of the following AC current harmonics does not exist on the ac side of

6 pulse converter [ ]

a)5 b)11 c) 17 d**)21**

29. Which of the following method may be used to inject reactive power in the transmission line[]

a) Series capacitor b) **shunt capacitor** c) Syn. Capacitor d) all

30. A syn. motor can be used as source of reactive power when [ ]

a) over excited **b) under excited** c) critically excited d) none

31. The reactive power sources required at -**transmission service equipment or devices.**

32. In india there a bipolar DC link for-------- [ ]

**a) +/- 500 kva,1500MW** b) 500kv,1500mw c)500kv,1500kw d) none

33.Monopolar DC link are used for -**only for low power rating and mainly for cable transmission. In some cases the monopolar lines installed earlier are converted into bipolar systems by adding additional substation pole and transmission pole.**

34. What is mean by back to back converter -**both rectifier & converter unit at same station**

35. Generation, transmission and distribution of power in----- [ ]

**a) Ac** b) dc c) only 1-ph d) none

36. Ground return is not used in the following link --------- [ ]

**a) bipolar** b) homopolar c) monopolar d) none

37. the skin effect is ----------- in dc transmission line [ ]

a)present **b) not present** c) not related d) none

38. stability of dc transmission line is ----------of the distance of transmission [ ]

**a) independent** b) dependent c) not related d) none

39. the homopolar dc links uses mostly—(**negative polarity**)

40. the voltage profile of dc lines vary with ----------- [ ]

a) distance b) **line loading** c) both d) none

41. for the same insulation level power losses in DC transmission line are -------ac

transmission line [ ]

**a) Less than** b) more than c) equal to d) none

42.A synchronous motor takes the leading

current when it is

a. Overexcited b. Under excited c. Not excited **d. Either (a) or (b)**

e. All of these

43) In order to improve the power factor of equipment operating at lagging power factor, a capacitor is connected

a. In series with the equipment **b. In parallel with the equipment**

c. In series-parallel with the equipment d. Either (a) or (b)

44) Phase advancers are used to improve the power factor of

**a. Induction motors** b. Induction generators c. Synchronous motors

d. Synchronous generators

45) Power factor of a load can be improved by using

a. Static capacitors b. Synchronous condenser c. Phase advancer

d. Only a and b **e. All of the above**

46) If power factor is less than unity then it will result in

a. Large kVA rating of equipment b. Greater conductorsize

c. Large copper losses d. Only A and C **e. All of these**

47) If the load current decreases then the power factor

a. Will also decrease **b. Will increase** c. Will remains unchanged

d. None of these

48) The wattles component is

a. I b. I cos0 **c. I sin0** d. None of these

49) For voltage boosting in distribution networks the capacitors used is

**a. Series capacitors** b. Shunt capacitors c. Both (a) and (b)

d. None of these

50) To reduce the power consumption, the capacitors should be located

**a. As close as possible to the load** b. As far as possible to the load

c. Not too close not too far from the load d. All of these

e. None of these

51) The ac voltage controller can be used for

a. Lighting and heating control b. On - line transformer tap changing

c. Soft starting **d. All of these**

52) With increase in firing angle,

a. Both harmonic distortion and quality of input current increases

**b. Harmonic distortion increases and quality of input current decreases**

c. Harmonic distortion decreases and quality of input current increases

d. Both harmonic distortion and quality of input current decreases

53) The most suited gate pulses given to the AC regulator with R - L load can be in the form of

a. Continuous signal b. Large isolating pulse transformer **c. A train of pulses**

d. None of these

54) The phase angle of gate signal in TRIAC can be shifted by using

a. A capacitor b. A variable resistor c. An inductor **d. Only (a) and (b)**

55) A TRIAC can be turned on with

a. Positive voltage at the gate terminal b. Negative voltage at the gate terminal

**c. Either (a) or (b)** d. None of these

56) DIAC and TRIAC both are semiconductors devices and conduct in

a. DIAC conducts in forward direction and TRIAC conducts in reverse direction

**b. Both conducts in forward direction** c. Both conducts in reverse direction

d. Both conducts in either direction

57) The maximum firing angle in the half wave controlled regulator is

a. 180 degree b. 190 degree c. 200 degree **d. 210 degree**

58) In a phase controlled 3 phase ac voltage controller, the harmonic present is

**a. 2nd** b. 3rd c. 5th d. 7th

59) As the breakdown voltage reached, the DIAC exhibits

a. Negative resistance characteristics b. Goes into avalanche condition

c. Voltage drop snaps back **d. All of these**

60) DIAC are specifically designed to trigger

a. TRIAC b. SCR c. GTO **d. Only (a) and (b)**