**Subject –Unit 6 TCVR & TCPAR**

**MCQ**

51.7 K

# Electrical - FACTS - MCQ - Flexible Alternating Current Transmission System - Latest Updated

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## FACTS MCQ 1

**1. FACTS devices used in**

a) Generation

b) AC transmission

c) DC transmission

d) None

**2. Voltage control means**

a) Boosting the feeder voltage

b) Reducing the line voltage under over voltage conditions

c) Keeping the voltage level within the allowable limits.

d) None

**3. Line drop compensation corrects for**

a) Line drop lagging P.F

b) voltage at leading P.F

c) Transformer voltage drop

d) voltage drop in feeder lines

**4. Which are the shunt compensation devices**

a) TCSC

b) SSSC

c) UPFC

d) SVC

**5. FACTS devices are generally used for to compensate\_\_\_\_\_\_\_\_\_\_of the transmission line**

a) reactive power

b) active power

c) apparent power

**6. Transmission efficiency increases as**

a) voltage and power factor both increase

b) voltage and power factor both decrease

c) voltage increases but power factor decreases

d) voltage decreases but power factor increases.

**7. SVC and STATCOM are\_\_\_\_\_\_\_\_\_\_\_\_\_\_ devices.**

a. series

b. series and shunt

c. shunt and series

d. shunt

**8. SVC stands for**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

a.Static Var Compensator

b. Static voltage controller

c. Static var converter

d. Static voltage converter

**9. STATCOM stands for**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**ANS:** Static Synchronous Compensator

**10. STATCOM is\_\_\_\_\_\_\_\_\_\_\_\_\_\_ regulating device.**

a. Current

b. Voltage

c. Current and Voltage

d. Power factor

**11. The main Objective of series compensation**

a) It improve the power factor

b) It reduces the fault currents

c) Reduce the voltage drop over long distance

d) None

**12. TCSC is a**

a) Shunt compensation device

b) Series compensation device

c) Both a & b

d) None of the above

**13. SSSC is a**

a) Series compensation device

b) shunt compensation device

c) combined compensator

d) loss reduction device

**14. Disadvantage with series compensation**

a) Reduce the stability

b) increase the voltage drop

c) Reduce the power factor

d) Increase in fault current

**15. SSSC stands \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**ANS**: Static Synchronous Series Compensator

**16. UPFC stands \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**ANS**: Unified power flow controller

**17. The purpose of the transmission network is to \_\_\_\_\_\_\_\_\_\_\_**

**ANS:** pool power plants and load centres

**18. Transmission Interconnection is done for\_\_\_\_\_\_\_\_**

a. economic reasons

b. to reduce the cost of electricity and

c. to improve reliability of power supply.

d. All of these

**19. FACTS controllers can enable a line to carry power closer to its\_\_\_\_\_\_\_**

a. Full efficiency

b. Dielectric rating

c. Thermal rating

**20. What limits the loading capability\_\_\_\_\_\_\_\_\_\_**

a. Thermal

b. Dielectric

c. Stability

d. All of these

**21.Basic types of FACTS controller\_\_\_\_\_\_\_\_\_\_\_**

a. Series Controllers and Shunt Controllers

b.Combined series-series Controllers

c.Combined series-shunt Controllers

d. All of these

**22.The voltage fluctuations are largely a consequence of the \_\_\_\_\_\_ in series impedances of lines, transformers, and generators.**

a. Current

b. Power

c. Voltage drop

d. None of these

**23. Unified Power Flow Controller (UPFC) is combination of \_\_\_\_\_\_\_\_\_**

a. STATCOM and TCSC

b. SSSC and TSC

c. STATCOM and SSSC

d. TSSC and TCR

**24. Load compensation is the management of \_\_\_\_\_\_\_ to improve the quality of supply in ac power systems.**

a. Active power

b. Reactive power

c. Apparent power

d. Both a & b

**25. Objectives of Load compensation\_\_\_\_\_\_\_\_**

a. Power-factor correction.

b. Improvement of voltage regulation.

c. Load balancing

d. All of these

**26. Power-factor correction usually means the practice of generating \_\_\_\_\_\_\_\_ as close as possible to the \_\_\_\_\_\_\_ which requires it, rather than supplying it from a remote power station.**

a. Active power, load

b. Active power, source

c. Reactive power, load

d. Reactive power, source

**27. The supply utilities also have good reasons for not transmitting unnecessary reactive power from generators to loads: their generators and distribution networks cannot be used at \_\_\_\_\_\_\_, and the control of \_\_\_\_\_\_\_\_in the supply system can become more difficult.**

a. Full efficiency, current

b. Full efficiency, voltage

c. Full power, current

d. Full power, voltage

**28. The FC-TCR is consist of \_\_\_\_\_\_\_\_and\_\_\_\_\_\_\_\_\_.**

a. Fixed capacitor, Fixed inductor

b. Variable capacitor, Fixed inductor

c. Variable capacitor, Variable inductor

d. Fixed capacitor, Variable inductor

**29. What is the necessity of compensation?**

a. Voltage profile

b. Power angle characteristics

c. Stability margin

d. Damping to power oscillations

e. All of these

**30. The objectives of FACTS controllers in the power system network.**

a. Better the control of power flow (Real and Reactive) in transmission lines.

b. Limits SC current

c. Increase the load ability of the system

d. a & b

e. a, b & c

**31. TCSC is a capacitive reactance compensator, which consists of \_\_\_\_\_\_\_capacitor bank \_\_\_\_\_\_ by a thyristor-controlled reactor.**

a. shunt, series

b. series, shunted

c. series, series

**32. The SVC is a \_\_\_\_\_\_\_\_\_ device of FACTS.**

a. series

b. series and shunt

c. shunt

**33. FACTS mainly find application in following areas.**

a. Power transmission

b. Power Quality

c. Railway Grid Connection

d. Wind power grid Connection

e. All of these

**34. There are how many generation of FACTS controllers.**

a. one

b. Two

c. Three

d. Four

**35. \_\_\_\_\_\_\_\_\_\_is the ability of a power system to maintain steady acceptable voltages at all buses in the system under normal operating conditions and after being subjected to a disturbance.**

a. voltage stability

b. current stability

c. power stability

d. Transient stability

**36. In bypassed mode, the thyristor are made to fully conduct with the conduction angle of \_\_\_\_\_\_ degree.**

a. 90

b. 180

c. 60

d. 30

**37. The salient features of STATCOM are\_\_\_\_\_\_.**

a. Compact size

b. Dynamic response

c. Wide range control

d. a & b

e. a, b & c

**38. The third main concern in load compensation is \_\_\_\_\_\_\_\_\_\_.**

a. Impedance balancing

b. Current balancing

c. Load balancing

d. Source balancing

**39. The ideal compensator would also consume \_\_\_\_\_\_ power; that is, it would be \_\_\_\_\_\_\_\_\_\_\_\_.**

ANS: Zero average , Lossless

**40. Methods of controllable VAR generation in shunt.**

ANS : a. Variable impedance type static var generation.

b. Switching converter type static var generation.

**41. When Thyristor control reactor(TCR) becomes Thyristor switched reactor(TSR).**

a. Alpha = 90

b. Alpha = 0

**42. Thyristor Switched Capacitor(TSC) is\_\_\_\_\_\_\_\_\_\_.**

a. Switching converter type

b. Variable impedance type

**43. Types of Series Compensators.**

Ans: a. Variable impedance type Series Compensators

b. Switching converter type Series Compensators

**44. List of Static Shunt compensators.**

a. TCR, TSR, TSSC, TSC

b. TSSC, TCSC, SVG, SVS

c. SVG, SVC, TCR, TSR

d. GCSC, TCSC, TSSC

**45.** **List of Static Series compensators.**

a. TCR, TSR, TSSC, TSC

b. GCSC, TCSC, TSSC

c. TSSC, TCSC, SVG, SVS

d. SVG, SVC, TCR, TSR

**46. Without any control , power flow is based on the inverse of the various transmission line \_\_\_\_\_\_\_\_\_.**

a. Reactance

b. Capacitance

c. Impedance

d. Power factor

**47. The HVDC line can be used to its full \_\_\_\_\_\_\_\_\_\_\_\_\_if adequate converter capacity is provided.**

a. Dielectric capacity

b. Thermal capacity

c. Efficiency

d. Transient Stability

**48. By means of controlling \_\_\_\_\_\_\_\_\_\_ a FACTS controller can control the power flow as required.**

a. Power factor

b. Frequency

c. Impedance

d. Real power

**4. By means of varying the \_\_\_\_\_\_\_\_\_\_ a FACTS controller can control the power flow as required.**

a. Phase angle

b. Capacitance

c. Frequency

d. Power factor

## Power Flow in Meshed System

**49. A thyristor-controlled series capacitor can greatly enhance the \_\_\_\_\_\_\_\_\_ of the network.**

a. Stability

b. power factor

c. efficiency

d. None of these

**50. Thyristor-Controlled Series Reactor can adjust the \_\_\_\_\_\_\_\_\_\_\_\_ flows as well as \_\_\_\_\_\_\_\_\_\_.**

ANS: Steady-state power, damp unwanted oscillations

**51. Thermal capability of an overhead line is a function of the \_\_\_\_\_\_\_\_\_ , \_\_\_\_\_\_\_\_\_, condition of the ,\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

ANS: Ambient temperature, Wind conditions, Conductor, Ground clearance

**52. \_\_\_\_\_\_\_\_\_\_\_\_ is the ability of the power system to maintain synchronism when subjected to a severe disturbance, such as a short circuit on a transmission line.**

a. Transient stability

b. Dynamic stability

c. Steady-state stability

d. Frequency collapse

**53. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is concerned with the ability of the power system to maintain synchronism under small disturbances.**

a. Transient stability

b. Dynamic stability

c. Steady-state stability

d. Frequency collapse

**54. \_\_\_\_\_\_\_\_\_\_\_is the phenomena caused if the system frequency is much lower than the nominal frequency.**

a. Steady-state stability

b. Frequency collapse

c. Voltage collapse

d. Sub-synchronous resonance

**55. The sub-synchronous resonance (SSR) phenomena occurs in \_\_\_\_\_\_\_\_\_resonant circuit.**

a. Series

b. Shunt

c. Parallel

d. non-linear

## Static Shunt Compensators

**56. Shunt connected, fixed or mechanically switched \_\_\_\_\_\_\_\_\_ are applied to minimize line overvoltage under light load conditions.**

a. Impedance

b. Reactor

c. Capacitors

d. Converter

**57. Shunt connected, fixed or mechanically switched \_\_\_\_\_\_\_\_\_ are applied to maintain voltage levels under heavy load conditions.**

a. Impedance

b. Capacitors

c. Converter

d. Reactor

**58. The ultimate objective of applying reactive shunt compensation in a transmission system is to increase the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

a. Reactance

b. Current

c. Transmittable power

d. Voltage

**59. Var compensation is thus used for voltage regulation at the \_\_\_\_\_\_\_\_\_\_\_\_ to segment the transmission line and at the \_\_\_\_\_\_of the (radial) line to prevent voltage instability.**

a. End, Mid

b. Start, End

c. Start, Mid

d. Mid, End

**60. A transmission line connecting two systems, the best location for var compensation is in the\_\_\_\_\_\_.**

a. Middle

b. Starting

c. Ending

d. No where

**61. Which year the first STATCOM was implemented?**

a. January 1980

b. January 1981

c. January 1983

d. January 1985

## Midpoint Voltage Regulation for Line Segmentation

**62. Two-Machine System (Without Compensator)**

Please, Do remember formula of Active Power and Reactive power of without compensator.

Active Power:

Reactive Power: 

**63. Two-Machine System (With Shunt Compensator)**

Please, Do remember formula of Active Power and Reactive power of with compensator.

Active Power : 

Reactive Power: 

The reactive power 𝑄𝑝 supplied by the shunt compensator:



**64. For a radial feed to a load the best location is at the \_\_\_\_\_\_\_.**

a. Load End

b. Starting

c. Mid

d. No where

**NOTE:** One more MCQ can be formed in the above question i.e leaving the radial position blank.

Ex. For a \_\_\_\_\_\_\_\_ feed to a load the best location is at the load end.

## Static Series Compensation

**65. AC power transmission over long lines was primarily limited by the \_\_\_\_\_\_\_\_\_\_\_\_\_ of the line.**

a. Shunt impedance

b. Series impedance

c. Series reactive impedance

d. Shunt reactive impedance

**The basic idea behind series capacitive compensation is to decrease the overall effective series transmission impedance from the sending end to the receiving end, i.e., 𝑋 in the P.**

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**66. For increasing the voltage stability limit of overhead transmission, \_\_\_\_\_\_\_\_\_\_\_\_ is much more effective than \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the same MVA rating.**

a. Shunt compensation, Series compensation

b. Series compensation, Shunt compensation

**67. The series compensator is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the shunt compensator.**

a. Nonreciprocal

b. Directly proportional

c. Reciprocal

d. Integral

**68. The shunt compensator is functionally a controlled reactive current source which is connected in parallel with the transmission line to control its \_\_\_\_\_\_\_\_\_.**

a. Voltage

b. Current

c. Power

d. Transient

**69. The series compensator is functionally a controlled voltage source which is connected in series with the transmission line to control its \_\_\_\_\_\_\_\_\_\_\_\_.**

a. Current

b. Voltage

c. Power

d. Transient

**70. In TSSC the degree of series compensation is controlled in a step-like manner by increasing or decreasing the number of series \_\_\_\_\_\_\_\_\_ inserted.**

a. Resistor

b. Inductor

c. Capacitor

d. Diode

**71. In TSSC a \_\_\_\_\_\_\_\_\_\_ is inserted by turning off, and it is bypassed by turning on the corresponding thyristor valve.**

a. Resistor

b. Inductor

c. Capacitor

d. Diode

**72. The TSSC could be applied for power flow control and for damping power oscillation where the required speed of response is \_\_\_\_\_\_\_\_\_\_\_\_.**

a. Slow

b. Moderate

c. Fast

d. Ultra-fast

**73. The SSSC use \_\_\_\_\_\_\_\_ thyristors.**

a. SCR

b. DIAC

c. TRIAC

d. GTO

**74. The TSSC employs \_\_\_\_\_\_\_\_\_ thyristors.**

a. DIAC

b. GTO

c. Conventional

d. MCT

**75. The SSSC requires a coupling transformer, rated for \_\_\_\_\_ p.u. of the total series var compensating range.**

a. 0.1

b. 0.3

c. 0.4

d. 0.5

**76. The TSSC is coupled \_\_\_\_\_\_\_\_\_ to the transmission line.**

a. By Capacitor

b. By Inductor

c. Directly

d. By coupling transformer

**77. Shunt connected, fixed or switched reactors are applied to\_\_\_\_\_\_\_\_\_\_\_.**

a. minimize line overvoltage under light load conditions

b. minimize line overvoltage under heavy load conditions

c. maximize voltage levels under light load conditions

d. maximize voltage levels under heavy load conditions

**78. Shunt connected, fixed or switched capacitors are applied to\_\_\_\_\_\_\_\_.**

a. maintain line voltage levels under light load conditions

b. maintain line voltage levels under any load conditions

c. maintain line voltage levels under heavy load conditions

d. maintain line voltage levels under no load conditions

**79. The objectives of applying reactive shunt compensation in a transmission system is to\_\_\_\_\_\_\_.**

a. increase the transmittable power.

b. improve the steady-state transmission characteristics

c. the stability of the system

d. all the above

**80. The midpoint shunt compensation can increase the transmittable power doubling its maximum value at the expense\_\_\_\_\_\_\_\_\_.**

a. doubling reactive power demand on the midpoint compensator and end generator

b. 4 times the reactive power demand on the midpoint compensator and end generator

c. 6 times reactive power demand on the midpoint compensator and end generator

d. without any change of reactive power demand

**81. For the single-line system the midpoint of the transmission line is the best location for the compensator. This is because\_\_\_\_\_.**

a. the voltage sag along the uncompensated transmission line is the weakest at the midpoint

b. the voltage sag along the uncompensated transmission line is not largest at the midpoint

c. the voltage sag along the uncompensated transmission line is the largest at the endpoints

d. the voltage sag along the uncompensated transmission line is the largest at the midpoint

**82. With the increase of the number of segment shunt compensators, the voltage variation along the line would\_\_\_\_\_\_.**

a. rapidly decrease

b. rapidly increase

c. not change

d. slightly increase

**83. The shunt compensation does\_\_\_\_\_\_\_\_.**

a. not provide end of line voltage support to prevent voltage instability

b. provide only mid of line voltage support to prevent voltage instability

c. provide end of line voltage support to prevent voltage instability

d. may or may not provide end of line voltage support to prevent voltage instability

**84. Without compensation the voltage at the receiving end would\_\_\_\_\_\_\_\_.**

a. not vary with the load and load power factor

b. vary with only the load

c. vary with the load and load power factor

d. vary with only the load power factor

**85. The voltage stability limit\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

a. increases with inductive loads and decreases with capacitive loads\_\_\_\_\_\_\_\_\_.

b. decreases with inductive loads and increases with capacitive loads

c. decreases with inductive loads and capacitive loads

d. increases with inductive loads and capacitive loads

**86. Appropriately controlled shunt compensation can enhance transient stability by\_\_\_\_\_\_\_.**

a. providing effective voltage support, it can increase the transmission capability of the post-fault system

b. increasing the transmission capability of the post-fault system only

c. providing effective voltage support only

d. none of the above

**87. If the uncompensated system has a sufficient transient stability margin, shunt compensation can\_\_\_\_\_\_\_\_\_.**

a. considerably increase the transmittable power without decreasing transient stability margin

b. considerably increase the transmittable power with decreasing transient stability margin

c. considerably decrease the transmittable power without decreasing transient stability margin

d. considerably increase the transmittable power by increasing transient stability margin

**88. A phase shifting of the transformer is adjusted by\_\_\_\_\_\_\_\_\_.**

a. SCR

b. Chopper

c. Cycloconverter

d. Phase advancer

**89. Power systems are normally designed to be transiently stable, when subjected to a major disturbance\_\_\_\_\_\_\_\_\_.**

a. with defined pre-fault contingency scenarios

b. with defined pre-fault contingency scenarios and post-fault system degradation

c. with post-fault system degradation

d. with required enhancement in power transmission capability

**90. It is economically savvy to employ fast acting compensation techniques, instead of overall network compensation, \_\_\_\_\_\_\_\_\_.**

a. dynamic events and increase the transmission capability of the degraded system

b. dynamic events of the degraded system

c. transmission capability of the degraded system

d. voltage of the system

**91. In power oscillation damping with shunt compensator, when the rotationally oscillating generator accelerates and\_\_\_\_\_\_\_\_\_\_.**

a. the electric power transmitted must be decreased

b. the electric power transmitted must be constant

c. the electric power transmitted must be increased

**92. In power oscillation damping with shunt compensator, when the generator decelerates and angle delta decreases, \_\_\_\_\_\_\_\_\_.**

a. the electric power must be increased

b. the electric power must be constant

c. the mechanical input power must be increased

d. the electric power must be decreased

**93. In power oscillation damping with shunt compensator, when the rotationally oscillating generator accelerates and\_\_\_\_\_\_\_\_\_\_\_.**

a. compensator shall introduce capacitive reactive power

b. compensator introduce inductive reactive power

c. no changes in reactive power shall be made

d. mechanical input power must be decreased

**94. In power oscillation damping with shunt compensator, when the rotationally oscillating generator decelerates and\_\_\_\_\_\_\_\_\_\_\_.**

a. compensator shall introduce capacitive reactive power

b. compensator introduce inductive reactive power

c. no changes in reactive power shall be made

d. mechanical input power must be increased

**95. The compensator must stay in\_\_\_\_\_\_\_with the ac system at the compensated bus under all operating condition\_\_\_\_\_\_.**

a. asynchronous operation

b. disconnected mode

c. synchronous operation

d. none of the above

**96. What are the sources of Real Power?**

a. AC Generators

b. DC Generators

c. All AC & DC Generators

d. None

**97. FACTS technology essential can overcome every type of hurdle in the transmission system\_\_\_\_\_.**

a. True

b. False

c. Can not be determined

d. None of these

**98. A Device whose output current which is either inductive or capacitive can be controlled effectively the system potential difference is known as\_\_\_\_\_\_\_\_.**

a. SSG

b. BESS

c. SMES

d. STATCOM

**99. TCBR involves cycle by cycle switching of a resistor, the resistor is basically a\_\_\_\_\_\_\_.**

a. Non-Inductive

b. Linear

c. Nonlinear

d. None of The Above

**100. The device which based on thyristor but having no gate turn off capability\_\_\_\_\_\_\_\_\_.**

a. TCSC

b. TCR

c. TSSR

d. TSSC

**101. Which of the following is the alternative for STATCOM at lower cost\_\_\_\_\_\_\_.**

a. TCR

b. SMES

c. SSSC

d. SVC

**102. STATCOM was first implemented in the year\_\_\_\_\_\_\_\_\_.**

a. January 1980

b. January 1981

c. January 1983

d. January 1985

**103. UPFC stands for\_\_\_\_\_\_\_\_\_\_\_.**

a. Unified power flow controller

b. Unidentified power flow controller

c. Unijunction power flow controller

d. None of these

**104. The Unified Power Flow Controller (UPFC) concept was proposed by\_\_\_\_\_\_\_\_\_.**

a. Gyugyi

b. Hingorani

c. Ravichandrudu

d. Smith

**105. The UPFC concept was proposed in the year\_\_\_\_\_\_\_\_\_\_.**

a. 1988

b. 1991

c. 1993

d. 1996

**106. The UPFC was devised for the \_\_\_\_\_\_\_\_.**

a. Future-time

b. Real-time

c. Past-time

d. None of above

**107. The UPFC is able to control all the parameters\_\_\_\_\_\_\_\_\_\_\_.**

a. Simultaneously

b. Selectively

c. Not possible

d. Both a & b

**108. The UPFC can control\_\_\_\_\_\_\_\_\_.**

a. Voltage

b. Impedance

c. Phase angle

d. All the above

**109. UPFC can independently control both the \_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_ power flow in the line.**

a. Real, Reactive

b. Real, Apparent

c. Reactive, Apparent

d. None of these

**110. SVS generally exchanges both \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_ power with the transmission system.**

a. Real, Apparent

b. Reactive, Apparent

c. Reactive, Real

d. None of these

**111. SVS stands for\_\_\_\_\_\_\_\_\_\_.**

a. Single virtual system

b. Synchronous voltage source

c. Synchronous vision system

d. None of these

**112. The UPFC consists of \_\_\_\_\_\_\_\_ voltage-sourced converters.**

a. One

b. Two

c. Three

d. Four

**113. UPFC can control\_\_\_\_\_\_\_\_\_\_.**

a. Active

b. Reactive

c. Both a & b

d. Only b

**114. UPFC is a combination of \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_ converter coupled via common voltage DC link.**

a. SVC, STATCOM

b. Series, Series

c. STATCOM, SSSC

d. None of these

**115. The UPFC uses a combination of shunt controller and a series controller interconnected through a common DC bus\_\_\_\_\_\_\_.**

a. True

b. False

c. Partially

d. None of these

**116. The \_\_\_\_\_\_\_\_\_\_\_\_, by means of angularly unconstrained series voltage injection is able to control selectively the transmission line voltage, impedance, and phase angle or alternatively the active and reactive power.**

a. SSSC

b. UPFC

c. TCSC

d. None of the above

**117. UPFC is a combination of which controller\_\_\_\_\_\_\_\_\_.**

a. STATCOM and SSSC

b. Series and Shunt

c. TCSC-TCR

d. Both a & b

**118. UPFC allows\_\_\_\_\_\_\_\_\_\_\_\_\_ real power between SSSC and STATCOM**

a. Unidirectional

b. Bidirectional

c. Separately operated

d. None of these

**119. UPFC is a combination of \_\_\_\_\_\_\_\_\_\_\_\_\_.**

a. Static synchronous compensator

b. Static series compensator

c. None of these

d. Both a & b

**120. In UPFC the active power for the series unit is obtained from the line itself via the\_\_\_\_\_\_\_ unit.**

a. Series

b. Shunt

c. Both a & b

d. None of these

**121. The controlled exchange of real power with an external source, such as \_\_\_\_\_\_\_\_\_, is much more effective in control of system dynamics than modulation of the power transfer within a system.**

a. Storage

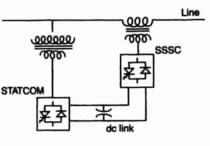
b. Line

c. Transformer

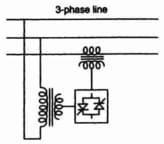
d. None of these

**122. Which diagram shows the UPFC \_\_\_\_\_\_\_\_\_\_\_.**

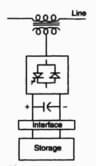
a.



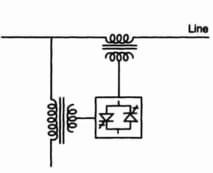
b.



c.



d.



**123. Control attributes of UPFC are\_\_\_\_\_\_\_\_\_\_\_.**

a. Active and reactive power control

b. Voltage control

c. VAR compensation

d. All the above

**124. Which is the Control attributes of UPFC \_\_\_\_\_\_\_\_\_.**

a. Damping oscillations

b. Voltage stability

c. Fault current limiting

d. All the above

**125. Which device is a combination of series and shunt compensator\_\_\_\_\_\_\_\_\_.**

a. TCSC

b. SSSC

c. UPFC

d. IPFC

**126. The \_\_\_\_\_\_\_\_\_ can function as a perfect Phase angle Regulator which can also supply the reactive power involved with the transmission angle control by internal var generation.**

a. STATCOM

b. SSSC

c. UPFC

d. None of these

**127. The basic function of \_\_\_\_\_\_\_\_\_\_\_ is to supply or absorb the real power demanded by \_\_\_\_\_\_\_\_\_\_ at the common dc link to support the real power exchange.**

a. Converter 1, Converter 2

b. Converter 2, Converter 1

c. Converter 1, Converter 1

d. Converter 2, Converter 2

## Load Compensation

**128. Load compensation is the management of \_\_\_\_\_\_\_\_\_\_ to improve the quality of supply in ac power systems.**

a. Power Quality

b. Active power

c. Reactive power

d. Apparent power

**129. Power-factor correction usually means the practice of generating reactive power as close as possible to the \_\_\_\_\_\_\_\_.**

a. Source

b. Power plant

c. Load

d. Substation

**130. Voltage regulation becomes an important and sometimes critical issue in the presence of loads which vary their demand for\_\_\_\_\_\_\_\_\_.**

a. Active power

b. Reactive power

c. Lagging Power factor

d. Leading Power factor

**131. The supply utility are bound to limit their supply voltage, typically \_\_\_\_\_\_\_\_\_ averaged over a period of a few minutes or hours.**

a. ±5%

b. ±10%

c. ±15%

d. ±20%

* **It is much more practical and economic to size the power system according to the maximum demand for real power, and to manage the reactive power by means of ‘compensators’ and other equipment which can be deployed more flexibly than generating units and which make no contribution to fault levels.**

## Loads Requiring Compensation

**132. It is typical that for sizeable industrial loads, power-factor correction is economically advantageous if the uncompensated power factor is less than \_\_\_\_\_\_\_\_.**

a. 0.5

b. 0.6

c. 0.7

d. 0.8

* **Typical of loads requiring compensation are arc furnaces, induction furnaces, arc welders, induction welders, steel rolling mills, mine winders, very large motors (particularly those which start and stop frequently), opencast excavators, wood chip mills, and high-energy physics experiments (e.g., synchrotrons) which require pulsed high-power supplies.**

**133. Large motor starts, limits Permitted in Voltage Fluctuation is \_\_\_\_\_\_\_\_.**

a. 1-3%

b. 1-5%

c. 5-10%

d. 2-5%

**134. Mine hoists, excavators, steel rolling mills, large thyristor-fed dc drives have limits permitted in voltage fluctuation at distribution voltages is \_\_\_\_\_ and at transmission voltages is \_\_\_\_\_\_.**

a. 1-3%, ½-1½%

b. 1-5%, ½-1½%

c. ½-1½%, 1-3%

d. ½-1½%, 1-5%

**135. Limits Permitted in Voltage Fluctuation for Arc furnaces is \_\_\_\_\_\_\_\_\_\_.**

a. ±15%

b. ±10%

c. ±5%

d. ±20%

**\*Do remember the Specification of a Load Compensator**

**\*Kindly go through POWER-FACTOR CORRECTION AND VOLTAGE REGULATION IN SINGLE-PHASE SYSTEMS**

Also read the difference between Before compensation and After compensation.

**136. A purely reactive compensator cannot maintain both constant \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_ simultaneously.**

a. Current, unity power factor

b. Voltage, unity power factor

c. Current, 0.8 power factor

d. Voltage, 0.8 power factor

## FACTS MCQ 2

**137. Voltage control means**

Keeping the voltage level within the allowable limits.

**138. FACTS devices are generally used for to compensate \_\_\_\_of the transmission line**

Reactive power

**139. Transmission efficiency increases as**

voltage and power factor both increase

**140. The main Objective of series compensation**

Reduce the voltage drop over long distance

**141. Transmission Interconnection is done for\_\_\_\_**

All of these

**142. FACTS controllers can enable a line to carry power closer to its\_\_\_**

Thermal rating

**143. What limits the loading capability\_\_\_\_**

All of these

**144. Basic types of FACTS controller\_\_\_\_\_**

All of these

**145. Objectives of Load compensation\_\_\_\_**

All of these

**146. The FC-TCR is consist of \_\_\_and\_\_\_\_.**

Fixed capacitor, Variable inductor

**147. TCSC is a capacitive reactance compensator, which consists of \_\_capacitor bank \_\_\_ by a thyristor-controlled reactor.**

series, shunted

**148. Shunt connected, fixed or mechanically switched \_\_\_ are applied to maintain voltage levels under heavy load conditions.**

Capacitors

**149. A transmission line connecting two systems, the best location for var compensation is in the\_\_\_\_.**

Middle

**150. The shunt compensator is functionally a controlled reactive current source which is connected in parallel with the transmission line to control its \_\_\_.**

Voltage

**151. The series compensator is functionally a controlled voltage source which is connected in series with the transmission line to control its \_\_\_\_.**

Current

**152. In TSSC the degree of series compensation is controlled in a step-like manner by increasing or decreasing the number of series \_\_\_ inserted.**

Capacitor

**153. The SSSC use \_\_\_\_ thyristors.**

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