

**JNTU ONLINE EXAMINATIONS** [Mid 2 - pe]

**1. For a three phase six pulse diode bridge rectifier ,the average output voltage in terms of maximum value of line voltage  $V_m$  is [01D01]**

- a.  $(3\sqrt{2}/\pi)V_m$
- b.  $(3/\pi)V_m$
- c.  $(3\sqrt{3}/2\pi)V_m$
- d.  $(3\sqrt{3}/\pi)V_m$

**2. In a three phase half wave diode rectifier ,the ratio of average output voltage to per phase maximum ac voltage is [01M01]**

- a. 0.955
- b. **0.827**
- c. 1.654
- d. 1.169

**3. Each diode of a 3- $\Phi$  half wave diode rectifier conducts for [01S01]**

- a. 60°
- b. **120°**
- c. 180°
- d. 90°

**4. Each diode of a 3- $\Phi$  ,6-pulse bridge diode rectifier conducts for [01S02]**

- a. 60°
- b. **120°**
- c. 180°
- d. 90°

**5. In a 3-  $\Phi$  half wave diode rectifier ,if the per phase input voltage is 200V ,then the average output voltage is**

**[01S03]**

- a. **233.91V**
- b. 116.95V
- c. 202.56V
- d. 101.28V

**6. In a three phase semi converter ,for firing angle less than or equal to 60°,each thyristor and diode conduct ,respectively for [02D01]**

- a.  $60^\circ, 60^\circ$
- b.  $90^\circ, 30^\circ$
- c.  $120^\circ, 120^\circ$
- d.  $180^\circ, 180^\circ$

**7. In a three phase full wave diode rectifier , if  $V_m$  is the maximum value of line voltage ,then each diode is subjected to a peak inverse voltage of [02M01]**

- a.  $V_m$
- b.  $\sqrt{3}V_m$
- c.  $2V_m$
- d.  $3V_m$

**8. In a three phase half wave diode rectifier ,dc output voltage is 230V .The peak inverse voltage across each diode is [02S01]**

- a. **481.7V**
- b. 460V
- c. 345V
- d. 230V

**9. In a three phase half wave diode rectifier, the peak inverse voltage in terms of average output voltage is [02S02]**

- a. 1.571
- b. 0.955
- c. 1.047
- d. **2.094**

**10. In a three phase half wave diode rectifier, if  $V_m$  is the maximum value of per phase voltage ,then each diode is subjected to a peak inverse voltage of [02S03]**

- a.  $V_m$

- b.  $\sqrt{3}V_m$
- c.  $2V_m$
- d.  $3V_m$

**11. A three phase semi converter can work as [03D01]**

- a. converter for  $\alpha = 0^\circ$  to  $180^\circ$
- b. converter for  $\alpha = 0^\circ$  to  $90^\circ$
- c. inverter for  $\alpha = 90^\circ$  to  $180^\circ$
- d. inverter for  $\alpha = 0^\circ$  to  $90^\circ$

**12. In a three phase semi converter for firing angle equal to  $120^\circ$  and extinction angle equal to  $110^\circ$ , freewheeling diode conduct for [03M01]**

- a. 100
- b. 300
- c. **500**
- d. 1100

**13. In a three phase semi converter, for firing angle less than or equal to  $60^\circ$ , free wheeling diode conducts for [03S01]**

- a.  $30^\circ$
- b.  $60^\circ$
- c.  $90^\circ$

**d. zero degree**

**14. In a three phase semi converter, for firing angle equal to  $90^\circ$ , and for continuous conduction, each SCR and diode conducts for [03S02]**

- a.  $30^\circ, 60^\circ$
- b.  $60^\circ, 30^\circ$
- c.  **$60^\circ, 60^\circ$**
- d.  $30^\circ, 30^\circ$

**15. In a three phase semi converter for firing angle equal to  $120^\circ$  and extinction angle equal to  $110^\circ$ , each SCR and diode conduct, respectively for [03S03]**

- a.  $30^\circ, 60^\circ$
- b.  **$60^\circ, 60^\circ$**
- c.  $90^\circ, 30^\circ$
- d.  $110^\circ, 30^\circ$

**16. In a three phase full converter, the output voltage during overlap is equal to [04D01]**

- a. zero
- b. source voltage
- c. Source voltage minus the inductance drop

**d. average value of the conducting phase voltages**

**17. In a three phase full converter, if the load current is  $I$  and ripple free, then the average thyristor current is [04M01]**

- a.  $1/2 I$
- b.  **$1/3 I$**
- c.  $1/4 I$
- d.  $I$

**18. In a three phase semi converter, the three SCRs are fired at an interval of [04S01]**

- a.  $60^\circ$
- b.  $90^\circ$
- c.  **$120^\circ$**
- d.  $180^\circ$

**19. In a three phase full converter, the six SCRs are fired at an interval of [04S02]**

- a.  $30^\circ$
- b.  **$60^\circ$**
- c.  $90^\circ$
- d.  $120^\circ$

**20. In a three phase full converter, the three SCRs pertaining to one group are fired at an interval of [04S03]**

- a.  $30^\circ$
- b.  $60^\circ$
- c.  $90^\circ$
- d.  **$120^\circ$**

**21. In the circulating current mode of a dual converter, \_\_\_\_\_ is inserted between the converters 1 and 2**

**[05D01]**

- a. reactor
- b. resistor
- c. fuse
- d. capacitor

**22. The effect of source inductance is to reduce the [05M01]**

**a. average dc output voltage**

- b. dc current
- c. ac input voltage
- d. losses

**23. In a single phase full converter, the output voltage due to overlap is [05S01]**

**a. zero**

- b. source voltage
- c. Source voltage minus the inductance drop
- d. inductance drop

**24. The angular period over which both the incoming and outgoing SCRs are conducting together is called [05S02]**

**a. Overlap angle**

- b. firing angle
- c. extinction angle
- d. ignition angle

**25. The total number of thyristors conducting simultaneously in a 3-phase full converter with overlap considered has the sequence of [05S03]**

- a. 3,3,2,2
- b. 3,3,3,2
- c. **3,2,3,2**
- d. 2,2,2,3

**26. A four quadrant operation requires [06D01]**

- a. two full converters in series
- b. **two full converters connected back to back**
- c. two full converters connected in parallel;
- d. two semi converters connected back to back.

**27. A dual converter using two full converters can give \_\_\_\_\_ quadrant operation [06M01]**

- a. one
- b. two
- c. three
- d. **four**

**28. Reactor limits the magnitude of \_\_\_\_\_ in a circulating current type dual converter. [06S01]**

- a. circulating voltage
- b. **circulating current**
- c. load voltage
- d. load current

**29. In a dual converter with circulating current mode firing pulses to the two converters are so adjusted that = [06S02]**

- a. 120
- b. 1500
- c. 900
- d. **1800**

**30. Two full converters connected back to back the same dc load is called a \_\_\_\_\_ [06S03]**

- a. chopper
- b. inverter
- c. rectifier
- d. **dual converter**

**31. A 1- $\Phi$  voltage controller is employed for controlling the power flow from 260V, 50Hz source into a load consisting**

**of  $R = 5\Omega$  and  $\omega L = 12\Omega$ . The value of maximum RMS load current and the firing angle are respectively [07D01]**

- a. **20A, 00**
- b. 26A, 00
- c. 20A, 900
- d. 26 A, 900

**32. In the case of AC voltage regulator ,control range of firing angle is given as [07M01]**

- a.  $\Phi < \alpha < 1800$
- b.  $\alpha < \Phi < 1800$
- c.  $\Phi < \alpha < 3600$
- d.  $\alpha < \Phi < 3600$

**33. In a circulating current type dual converter ,the nature of the voltage across reactor is [07S01]**

- a. alternating
- b. pulsating
- c. direct
- d. triangular

**34. In a dual converter ,converters 1 and 2 work as under [07S02]**

- a. 1 as rectifier ,2 as inverter
- b. both as rectifiers
- c. both as inverters
- d. 1 as chopper and two as inverter

**35. AC voltage controllers is a device which converts \_\_\_\_\_ directly to \_\_\_\_\_ without a change in \_\_\_\_\_. [07S03]**

- a. fixed alternating voltage ,variable alternating voltage ,frequency.
- b. fixed direct voltage ,variable direct voltage , phase angle.
- c. variable alternating, fixed alternating voltage , frequency.
- d. variable direct voltage , fixed direct voltage , phase angle.

**36. A single phase voltage controller feeds power to a resistance of  $10 \Omega$  .The source voltage is 200V rms. For a firing**

**angle of  $90^\circ$ , the rms value of thyristor current in amperes is [08M01]**

- a. 20
- b. 15
- c. 10
- d. 5

**37. In a single phase ac voltage regulator with RL load , ac power can be controlled if [08S01]**

- a.  $\alpha > \Phi$  and  $\gamma < 1800$
- b.  $\alpha < \Phi$  and  $\gamma = 1800$
- c.  $\alpha < \Phi$  and  $\gamma > 1800$
- d.  $\alpha > \Phi$  and  $\gamma = 1800$

**38. A single phase voltage controller using two SCR's connected in anti parallel acts as controlled rectifier if [08S02]**

- a. load is R and pulse gating is used
- b. load is RL and pulse gating is used.
- c. load is RL and continuous gating is used.
- d. load is R and high frequency carrier gating is used.

**39. A load resistance of  $10\Omega$  is fed through through a single phase voltage controller from a voltage source  $200 \sin$**

**314t .For a firing delay of  $90^\circ$ , the power delivered to load in kW ,is [08S03]**

- a. 0.5
- b. 0.75
- c. 1
- d. 2

**40. Three phase to three phase cycloconverters employing 18 SCRs and 36 SCRs have the same voltage and current ratings for their component thyristors .The ratio of VA rating of 36-SCR device to that of 18 SCR device is [09D01]**

- a.  $1/2$
- b. 1
- c. 2
- d. 4

**41. The cycloconverters (CCs ) require natural or forced commutation as under [09M01]**

- a. natural commutation in both step up and step down CCs
- b. forced commutation in both step up and step down CCs
- c. forced commutation in step up CCs
- d. forced commutation in step down CCs

**42. In a single phase voltage controller with RL load ,when [09S01]**

- a. firing angle  $\alpha < \Phi$ , load  $v_o$  is sinusoidal
- b.  $\alpha < \Phi$ , load  $v_o$  is non-sinusoidal
- c.  $\alpha > \Phi$  ,load  $v_o$  is non-sinusoidal

d.  $\alpha < \Phi$ , load  $v_o$  is sinusoidal.

**43. In a single phase voltage controller with RL load,  $\alpha$  is the firing angle,  $\Phi$  is the load phase angle and  $\beta$  is the**

**extinction angle. For this voltage controller, output power can be controlled if and [09S02]**

- a.  $\beta - \alpha = \pi$
- b.  $\beta - \alpha < \pi$
- c.  $\beta > \pi$
- d.  $\beta < \pi$

**44. A cyclo converter is a [09S03]**

- a. frequency changer (fc) from higher to lower frequency with one stage conversion
- b. fc from higher to lower frequency with two stage conversion
- c. fc from lower to higher frequency with one stage conversion
- d. either (a) or (c)

**45. For converting 3-phase supply at one frequency to single phase at a lower frequency, the basic principle is to \_ \_ \_**

**\_ \_ the firing angle \_ \_ \_ \_ [10D01]**

- a. keep, constant
- b. vary, gradually
- c. increase, at once
- d. decrease, instantaneously

**46. A three phase to three phase cycloconverter requires [10D02]**

- a. 18 SCRs for three pulse device
- b. 18 SCRs for six pulse device
- c. 36 SCRs for three pulse device
- d. 38 SCRs for six pulse device

**47. A three phase to single phase conversion device employs 6-pulse bridge cycloconverter. For an input voltage of**

**200V per phase, the fundamental rms value output voltage is [10M01]**

- a.  $600/\pi$  V
- b.  $300\sqrt{3}/\pi$  V
- c.  $300/\pi$  V
- d.  $6003/\pi$  V

**48. Which of the following statement is incorrect for cycloconverters [10M02]**

- a. step-down cycloconverter (CC) works on natural commutation.
- b. Step-up CC requires forced commutation
- c. Load commutated CC works on line commutation
- d. Load commutated CC requires a generated emf in the load circuit

**49. Three phase to three phase cycloconverters employing 18 SCRs and 36 SCRs have the same voltage and current ratings for their component thyristors. The ratio of power handled by 36-SCR device to that handled by 18- SCR device [10S01]**

- a. 4
- b. 2
- c. 1
- d.  $1/2$

**50. The number of thyristors required for single phase to single phase cyclo converters of the mid-point type are [10S02]**

- a. 4
- b. 8
- c. 10
- d. 6

**51. The number of thyristors required for three phase to three phase 3-pulse type cyclo converters are [10S03]**

- a. 6
- b. 18
- c. 36
- d. 42

**52. For a step-down chopper working at a frequency of 500 Hz and supplying a highly inductive load, when the chopper power semiconductor device is changed from ON state to OFF state, the current in the load will : [11D01]**

- a. Remain same
- b. Increase

c. Decrease

d. Become zero

**53. In a step-down chopper working at a frequency of 500 Hz and supplying a highly inductive load, when the chopper power semiconductor device is changed from OFF state to ON state, the current in the load will : [11D02]**

a. Remain same

**b. Increase**

c. Decrease

d. Become zero

**54. In a step-down chopper operating from DC input voltage of 400 V, neglecting the on-state drops in the power semiconductor devices, the voltage across load during the on-period of thyristor is : [11M01]**

a. Zero

b. 100 V

**c. 400 V**

d. 500 V

**55. In a step-down chopper operating from DC input voltage of 500 V, neglecting the on-state drops in the power semiconductor devices, the voltage across load during the off-period of thyristor is : [11M02]**

**a. Zero**

b. 100 V

c. 400 V

d. 500 V

**56. Chopper is a power semiconductor converter, which is used for : [11S01]**

a. AC to DC Conversion

b. DC to AC conversion

**c. DC to DC conversion**

d. AC to AC conversion

**57. In a step-down chopper fed from a DC input voltage of 100 V and supplying a highly inductive load, when the chopper thyristor is switched OFF, then neglecting the on-state drops in the power semiconductor devices, the voltage across the thyristor will be : [11S02]**

a. Zero

b. 40 V

c. 80 V

**d. 100 V**

**58. In a step-down chopper fed from a DC input voltage of 200 V and supplying a highly inductive load, when the chopper thyristor is switched OFF, then neglecting the on-state drops in the power semiconductor devices, the voltage across free-wheeling diode connected across the load will be : [11S03]**

**a. Zero**

b. 50 V

c. 100 V

d. 200 V

**59. In a step-down chopper fed from a DC input voltage of 100 V and supplying a highly inductive load, when the chopper thyristor is switched ON, then neglecting the on-state drops in the power semiconductor devices, the voltage across the thyristor will be : [11S04]**

**a. Zero**

b. 40 V

c. 80 V

d. 100 V

**60. In a step-down chopper fed from a DC input voltage of 200 V and supplying a highly inductive load, when the chopper thyristor is switched ON, then neglecting the on-state drops in the power semiconductor devices, the voltage across free-wheeling diode connected across the load will be : [11S05]**

a. Zero

b. 50 V

c. 100 V

**d. 200 V**

- 61. A separately excited DC motor is supplied from a fixed input DC voltage through a step-down chopper system. In which quadrant can the DC motor be operated by this system : [12D01]**
- Forward motoring
  - Forward braking
  - Reverse motoring
  - Reverse braking
- 62. A separately excited DC motor is operated from a fixed input DC voltage through a step-down chopper system. For changing the mode of operation from discontinuous to continuous, the duty- ratio of chopper must : [12D02]**
- Remain same
  - Increase
  - Decrease
  - become zero
- 63. A step-down chopper supplies an output DC voltage of 200 V from the input DC voltage of 250V. If the chopping frequency is 500 Hz, the off-time will be : [12M01]**
- 0.4 ms
  - 1.0 ms
  - 1.6 ms
  - 2.0 ms
- 64. A step-down chopper supplies an output DC voltage of 120 V from the input DC voltage of 200V. If the off-time is 4 ms, the chopper period is : [12M02]**
- 10 ms
  - 20 ms
  - 30 ms
  - 40 ms
- 65. In a step-down chopper, if the on-time is double of the off-time, then the duty-cycle of the chopper is : [12M03]**
- 20 %
  - 33 %
  - 66 %
  - 80 %
- 66. For a step-down chopper working at a chopping frequency of 100 Hz, the on-time is 8 ms. For an average output DC voltage of 400 V, what must be the input DC voltage : [12M04]**
- 100 V
  - 300 V
  - 500 V
  - 1000 V
- 67. In a step-down chopper, if the on-time is 8 ms and off-time is 2 ms, then the duty-cycle of chopper is : [12S01]**
- 20 %
  - 40 %
  - 60 %
  - 80 %
- 68. In a step-down chopper, if the on-time is 4 ms and the chopping frequency is 100 Hz, then the duty-cycle of the chopper is : [12S02]**
- 20 %
  - 40 %
  - 60 %
  - 80 %
- 69. For an input DC voltage of 100 V, if the duty-cycle of a step-down chopper is 80 %, then average output DC voltage is : [12S03]**
- 20 V
  - 40 V
  - 60 V
  - 80 V
- 70. In the current limit control of a step-down chopper, when the current reaches the upper limit, what operation must be done : [13D01]**
- Chopper is switched ON

**b. Chopper is switched OFF**

- c. No operation necessary
- d. Load is decreased

**71. In the current limit control of a step-down chopper, when the current reaches the lower limit, what operation must be done : [13D02]**

**a. Chopper is switched ON**

- b. Chopper is switched OFF
- c. No operation necessary
- d. Load is increased

**72. In the time-ratio control of a step-down chopper with a constant chopper period of 10 ms, if the on-time of 4 ms is doubled, then the average output DC voltage will : [13D03]**

- a. Be the same
- b. Become half
- c. Become 2 times**
- d. Become 2.5 times

**73. In the time-ratio control of a step-down chopper, if the on-time is kept constant at 2 ms, but the chopping frequency is decreased from 200 Hz to 100 Hz, then average output DC voltage will be : [13M01]**

- a. The same
- b. Become half**
- c. Become 2 times
- d. Become 2.5 times

**74. In the time-ratio control of a step-down chopper with an input DC voltage of 100 V, if the off-time is kept constant at 4 ms, but the chopping period is decreased from 12 ms to 8 ms then the average output DC voltage will : [13M02]**

- a. Remain same
- b. Become 0.75 times**
- c. Become 0.5 times
- d. Become 04 times

**75. The strategy in current limit control of a step-down chopper is : [13M03]**

- a. Chopper is operated at a fixed chopping frequency
- b. Chopper on-time is kept constant
- c. Chopper off-time is kept constant
- d. Chopper is made ON and OFF so that load current is maintained between two limits**

**76. For a fixed chopping frequency of a step-down chopper fed from a constant input DC voltage, if the average output DC voltage is to be decreased, then which of the following operation for the chopper is done : [13S01]**

- a. On-time is increased
- b. On-time is decreased**
- c. Off-time is decreased
- d. Chopping period is decreased

**77. The strategy in constant frequency system for time-ratio control of a step-down chopper is : [13S02]**

- a. On-time is varied, but the chopping period is kept constant**
- b. On-time is kept constant, but the chopping period is varied
- c. Off-time is kept constant, but the chopping period is varied
- d. Ratio of on-time to chopping period is kept constant

**78. The strategy in variable frequency system for time-ratio control of a step-down chopper is : [13S03]**

- a. Ratio of on-time to chopping period is kept constant
- b. Ratio of off-time to chopping period is kept constant
- c. On-time or off-time is kept constant, but the chopping period is varied**
- d. Ratio of on-time to off-time is kept constant

**79. In the time-ratio control of a step-down chopper, the chopping frequency is kept constant at 50 Hz. If the on-time of 10 ms is decreased to 5 ms, then the average output DC voltage will : [13S04]**

- a. Be the same
- b. Become half**
- c. Become 2 times
- d. Become 2.5 times

**80. In a step-up chopper fed from a DC input voltage of 100 V, working at the duty-cycle of 25 % and supplying a highly inductive load, when the chopper thyristor is switched ON, then neglecting the on-state drops in the power semiconductor devices, the voltage across the thyristor will be : [14D01]**

- a. Zero
- b. 100 V
- c. 200 V
- d. 400 V

**81. In a step-up chopper fed from a DC input voltage of 100 V, working at the duty-cycle of 25 % and supplying a highly inductive load, when the chopper thyristor is switched OFF, then neglecting the on-state drops in the power semiconductor devices, the voltage across the diode in series with the input supply will be : [14D02]**

- a. Zero
- b. 100 V
- c. 200 V
- d. 400 V

**82. In a step-up chopper fed from a DC input voltage of 100 V, working at the duty-cycle of 75 % and supplying a highly inductive load, when the chopper thyristor is switched OFF, then neglecting the on-state drops in the power semiconductor devices, the voltage across the thyristor will be : [14D03]**

- a. Zero
- b. 100 V
- c. 200 V
- d. 400 V

**83. In a step-up chopper fed from a DC input voltage of 100 V, working at the duty-cycle of 75 % and supplying a highly inductive load, when the chopper thyristor is switched ON, then neglecting the on-state drops in the power semiconductor devices, the voltage across the series diode will be : [14D04]**

- a. Zero
- b. 100 V
- c. 200 V
- d. 400 V

**84. A step-up chopper supplies an inductive load from an input DC voltage of 100 V. If the duty-cycle is changed from 75 % to 50 %, the average output DC voltage will : [14M01]**

- a. Be the same
- b. Become half
- c. Become 1.5 times
- d. Become 2 times

**85. A step-up chopper supplies a load with output DC voltage of 500 V from an input DC voltage of 400 V. If the offtime is 8 ms, then the on-time of the chopper is : [14M02]**

- a. 2 ms
- b. 4 ms
- c. 6 ms
- d. 10 ms

**86. In a step-up chopper circuit, when the chopper thyristor is turned ON, then the current in the inductor (connected in series with the input DC supply) will : [14S01]**

- a. Remain same
- b. Increase
- c. Decrease
- d. become zero

**87. In a step-up chopper circuit, when the chopper thyristor is turned OFF, then the current in the inductor (connected in series with the input DC supply) will : [14S02]**

- a. Remain same
- b. Increase
- c. Decrease
- d. become zero

**88. In a step-up chopper, the power semiconductor device is switched ON for a period of 10 ms and is switched OFF for a period of 10 ms. If the input DC voltage is 100 V, then the average output DC voltage will be : [14S03]**

- a. 50 V
- b. 100 V
- c. 150 V
- d. 200 V**

**89. In a step-up chopper working on a constant input DC voltage, what should be done about the duty cycle, if the average value of the output DC voltage is to be increased : [14S04]**

- a. Duty-cycle must remain constant
- b. Duty cycle must be made 1.0
- c. Duty-cycle must be increased**
- d. Duty-cycle must be decreased

**90. In a step-up chopper working on a constant input DC voltage, what should be done about the duty cycle, if the average value of the output DC voltage is to be decreased : [14S05]**

- a. Duty-cycle must remain constant
- b. Duty cycle must be made 1.0
- c. Duty-cycle must be increased
- d. Duty-cycle must be decreased**

**91. In an AC chopper feeding a load, the two main thyristors in a line are connected : [15D01]**

- a. In series with each other
- b. In parallel to each other
- c. In reverse parallel to each other**
- d. In parallel to the load

**92. In an AC chopper feeding a load, if the firing angle of thyristors is increased from 10° to 30°, then the RMS value of output AC voltage will : [15D02]**

- a. Remains same
- b. Decrease**
- c. Increase
- d. Become zero

**93. In a Jones chopper circuit, when the auxiliary thyristor-T2 is turned ON, then which condition occurs for the main thyristor-T1 by the discharge of the capacitor through T1 and T2 : [15M01]**

- a. T1 turns On
- b. T1 gets forward biased
- c. T1 gets reverse biased**
- d. Condition for T1 remains the same

**94. In a Jones chopper circuit, if the inductance-L1 becomes 4 times while the capacitance-C remains the same, then the off-time of chopper will become : [15M02]**

- a. 0.5 times
- b. 1.2 times
- c. 2 times**
- d. 4 times

**95. In a Jones chopper circuit, if the maximum load current becomes 2 times, then the off-time of chopper will become : [15M03]**

- a. 0.5 times**
- b. 1.2 times
- c. 2 times
- d. 4 times

**96. Which particular component forms the special features of the Morgan chopper circuit : [15S01]**

- a. 2-winding transformer
- b. 3-winding transformer
- c. Tapped autotransformer
- d. Saturable reactor**

**97. In Morgan chopper circuit, the average output DC voltage can be decreased by : [15S02]**

- a. Reducing the operating frequency**
- b. Increasing the operating frequency
- c. Using an auxiliary thyristor
- d. Not using an auxiliary diode

**98. In Morgan chopper circuit, the average output DC voltage can be increased by : [15S03]**

- a. Reducing the operating frequency
- b. Increasing the operating frequency**
- c. Using an auxiliary thyristor
- d. Not using an auxiliary diode

**99. Which of the class of commutation does the Jones chopper belong to : [15S04]**

- a. Class-A
- b. Class-B
- c. Class-C
- d. Class-D**

**100. Which particular component forms the special features of the Jones chopper circuit : [15S05]**

- a. 2-winding transformer
- b. 3-winding transformer
- c. Tapped autotransformer**
- d. Saturable reactor

**101. In an AC chopper feeding a load, if the RMS value of output AC voltage is to be increased, then the firing angle of thyristors must be : [15S06]**

- a. Kept constant
- b. Increased
- c. Decreased**
- d. Made  $90^\circ$

**102. In a single-phase half (semi)-controlled bridge inverter, the gate signals to the main thyristors are given at an interval of: [16D01]**

- a.  $60^\circ$
- b.  $90^\circ$
- c.  $120^\circ$
- d.  $180^\circ$**

**103. In a three-phase fully-controlled bridge inverter, the gate signals to the main thyristors are given at an interval of: [16D02]**

- a.  $60^\circ$**
- b.  $90^\circ$
- c.  $120^\circ$
- d.  $180^\circ$

**104. The frequency of output AC voltage is increased in an inverter by : [16D03]**

- a. Decreasing the input DC voltage
- b. Increasing the input DC voltage
- c. Decreasing the time period between the triggering of the successive thyristors**
- d. Increasing the time period between the triggering of the successive thyristors

**105. In a three-phase bridge inverter circuit, regarding the peak value of the output AC voltage, it is : [16D04]**

- a. The same as the input DC voltage**
- b. Less than the input DC voltage
- c. More than the input DC voltage
- d. It is not related to the input DC voltage

**106. The total number of free-wheeling diodes in a three-phase fully-controlled bridge inverter will be : [16M01]**

- a. 1
- b. 2
- c. 3
- d. 6**

**107. The total number of thyristors in a three-phase fully-controlled bridge inverter will be : [16M02]**

- a. 1
- b. 2
- c. 3
- d. 6**

**108. In a single-phase bridge inverter, the gate signals to the main thyristors are given at an interval of : [16M03]**

- a.  $60^\circ$
- b.  $90^\circ$
- c.  $120^\circ$
- d.  $180^\circ$**

**109. Inverter is a power semiconductor converter, which is used for : [16S01]**

- a. AC to DC conversion
- b. DC to AC conversion**
- c. DC to DC conversion
- d. AC to AC conversion

**110. The total number of thyristors in a single-phase fully-controlled bridge inverter will be : [16S02]**

- a. 1
- b. 2
- c. 3
- d. 4**

**111. The total number of thyristors in a single-phase half (semi)-controlled bridge inverter will be : [16S03]**

- a. 1
- b. 2**
- c. 3
- d. 4

**112. The total number of free-wheeling diodes in a single-phase fully-controlled bridge inverter will be: [16S04]**

- a. 1
- b. 2
- c. 3
- d. 4**

**113. The total number of free-wheeling diodes in a single-phase half (semi)-controlled bridge inverter will be: [16S05]**

- a. 1
- b. 2**
- c. 3
- d. 4

**114. Two thyristors T1 and T2 are used in a basic series inverter circuit to supply a series R-L-C load from an input DC**

**supply. If the time-delay between turn-off of T1 and turn-on of T2 is increased, then, the inverter frequency will :**

**[17M01]**

- a. Remain constant
- b. Become zero
- c. Increase
- d. Decrease**

**115. Two thyristors T1 and T2 are used in a basic series inverter circuit to supply a series R-L-C load from an input DC**

**supply. If the time-period for oscillation of R-L-C circuit is increased, then the inverter frequency will : [17M02]**

- a. Remain constant
- b. Become zero
- c. Increase
- d. Decrease**

**116. Two thyristors T1 and T2 are used in a basic series inverter circuit to supply a series R-L-C load from an input DC**

**supply. When thyristor T1 is triggered, the load current : [17S01]**

- a. Will build up in positive half cycle**
- b. Will remain zero
- c. Will build up in negative half cycle
- d. Will remain constant

**117. Two thyristors T1 and T2 are used in a basic series inverter circuit to supply a series R-L-C load from an input DC**

**supply. When both the thyristors are OFF, the load current : [17S02]**

- a. Will build up in positive half cycle
- b. Will remain zero**
- c. Will build up in negative half cycle
- d. Will remain constant

**118. Two thyristors T1 and T2 are used in a basic series inverter circuit to supply a series R-L-C load from an input DC**

**supply. When thyristor T2 is triggered, the load current : [17S03]**

- a. Will build up in positive half cycle
- b. Will remain zero
- c. Will build up in negative half cycle**

d. Will remain constant

**119. In a basic parallel inverter, two thyristors T1 and T2 are used to switch the dc supply alternately to the two halves of the transformer primary. However, in addition, for which condition of load will two feedback diodes**

**become essential : [18D01]**

- a. When the load is opened
- b. When the load is shorted
- c. When the load is purely resistive

**d. When the load is inductive**

**120. In a basic parallel inverter, two thyristors T1 and T2 are used to switch the dc supply alternately to the two halves of the transformer primary. When thyristor T1 is turned on, the capacitor gets charged to the voltage of:**

**[18M01]**

- a.  $E_{dc}$
- b.  $2 E_{dc}$
- c.  $-2 E_{dc}$
- d.  $-E_{dc}$

**121. In a basic parallel inverter, two thyristors T1 and T2 are used to switch the dc supply alternately to the two halves of the transformer primary. When thyristor T2 is turned on, the capacitor gets charged to the voltage of :**

**[18M02]**

- a.  $E_{dc}$
- b.  $2 E_{dc}$
- c.  $-2 E_{dc}$
- d.  $-E_{dc}$

**122. In a basic parallel inverter, two thyristors are used to switch the dc supply alternately to the two halves of the transformer primary. For this, which of the following component is used to connect the input DC source to the mid**

**point of the transformer : [18S01]**

- a. Resistance
- b. Inductor
- c. Capacitor
- d. Diode

**123. In a basic parallel inverter, two thyristors are used to switch the dc supply alternately to the two halves of the transformer primary. For this, which of the following component is used across the transformer primary : [18S02]**

- a. Resistance
- b. Inductor
- c. Capacitor
- d. Diode

**124. In a basic parallel inverter, two thyristors T1 and T2 are used to switch the dc supply alternately to the two halves of the transformer primary. For this, where is the load connected to get the alternating supply : [18S03]**

- a. Across one-half of the transformer primary
- b. In series with T2

**c. Across the transformer secondary**

- d. In series with T1

**125. In the McMurray - Bedford full-bridge inverter, total how many numbers of thyristors will be required : [19M01]**

- a. 2
- b. 4
- c. 6
- d. 8

**126. In the McMurray - Bedford full-bridge inverter, total how many numbers of diodes will be required : [19M02]**

- a. 2
- b. 4
- c. 6
- d. 8

**127. In a single-phase McMurray inverter, 4 main thyristors are used in a single-phase bridge configuration to supply a load. How many numbers of auxiliary thyristors will be required for the commutation : [19S01]**

- a. 1
- b. 2
- c. 3
- d. 4

**128. In the single-phase modified McMurray full-bridge inverter, which of the following component is added to the single-phase McMurray inverter : [19S02]**

- a. 4 auxiliary thyristors
- b. 4 auxiliary diodes
- c. Additional 4 capacitors
- d. Additional 4 inductors

**129. In the modified McMurray full-bridge inverter, total how many numbers of thyristors (main + auxiliary) will be required : [19S03]**

- a. 2
- b. 4
- c. 6
- d. 8

**130. In the modified McMurray full-bridge inverter, total how many numbers of diodes (main + auxiliary) will be required : [19S04]**

- a. 2
- b. 4
- c. 6
- d. 8

**131. In a three-phase bridge inverter with sinusoidal PWM control, if the modulation index is increased from 0.5 to 0.8, then it results in : [20D01]**

- a. Decrease of output frequency
- b. Decrease of RMS value of output AC voltage
- c. Increase of output frequency
- d. Increase of RMS value of output AC voltage

**132. In a three-phase PWM bridge inverter with PWM control, which of the following statements is true regarding the output AC voltage : [20D02]**

- a. Only RMS value can be controlled
- b. Only frequency of output AC voltage can be controlled
- c. Both RMS value and the frequency can be controlled
- d. No control of RMS value or frequency is possible

**133. One of the main purpose of using a PWM control in a three-phase bridge inverter is : [20M01]**

- a. Reduce the RMS value of the output AC voltage
- b. Reduce the frequency of the output AC voltage
- c. Reduce the harmonic content in the output AC voltage
- d. Reduce the number of devices in the inverter

**134. In sinusoidal PWM technique for a three-phase bridge inverter, for the generation of gating signals of thyristors, which type of carrier wave and reference wave are compared : [20M02]**

- a. Sinusoidal reference wave is compared with sinusoidal carrier wave
- b. Sinusoidal reference wave is compared with triangular carrier wave
- c. Sinusoidal reference wave is compared with constant (DC) carrier wave
- d. DC reference wave is compared with sinusoidal carrier wave

**135. In a single-pulse width control, the gating signals are generated by : [20S01]**

- a. Comparing a rectangular reference signal with a rectangular carrier wave
- b. Comparing a rectangular reference signal with a sinusoidal carrier wave
- c. Comparing a sinusoidal reference signal with a rectangular carrier wave
- d. Comparing a rectangular reference signal with a triangular carrier wave

**136. In PWM control of inverters, the ratio of carrier frequency to reference or output frequency is called as : [20S02]**

- a. Amplitude Modulation index
- b. Frequency modulation ratio
- c. Modulation index

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d. Distortion ratio

**137. In PWM control of inverters, the ratio of amplitude of reference signal to amplitude of carrier wave is called as :  
[20S03]**

**a. Modulation index**

b. Frequency modulation ratio

c. Distortion ratio

d. Displacement factor

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