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| | **Power Electronics (EE 5th Semester)**<br><br>**Unit 3: CHOPPERS** |
| 1 | Choppers converter<br>a) AC to DC<br>b) DC to AC<br>c) **DC to DC**<br>d) AC to AC |
| 2 | A chopper may be thought as a<br>a) Inverter with DC input<br>b) **DC equivalent of an AC transformer**<br>c) Diode rectifier<br>d) DC equivalent of an induction motor |
| 3 | Which device can be used in a chopper circuit?<br>a) BJT<br>b) MOSFET<br>c) GTO<br>d) **All of the mentioned** |
| 4 | A chopper is a<br>a) Time ratio controller<br>b) AC to DC converter<br>c) DC transformer<br>d) **High speed semiconductor switch** |
| 5 | What is the duty cycle of a chopper?<br>a) Ton/Toff<br>b) **Ton/T**<br>c) T/Ton<br>d) Toff x Ton |
| 6 | The load voltage of a chopper can be controlled by varying the<br>a) **duty cycle**<br>b) firing angle<br>c) reactor position<br>d) extinction angle |
| 7 | The values of duty cycle (α) lies between<br>a) 0<α<1<br>b) 0>α>-1<br>c) **0<=α<=1**<br>d) 1<α<100 |
| 8 | If T is the time period for a chopper circuit and α is its duty cycle, then the chopping frequency is<br>a) Ton/α<br>b) Toff/α<br>c) α/Toff<br>d) **α/Ton** |
| 9 | Find the output voltage expression for a step down chopper with Vs as the input voltage and α as the duty cycle.<br>a) Vo = Vs/α<br>b) **Vo = Vs x α** |

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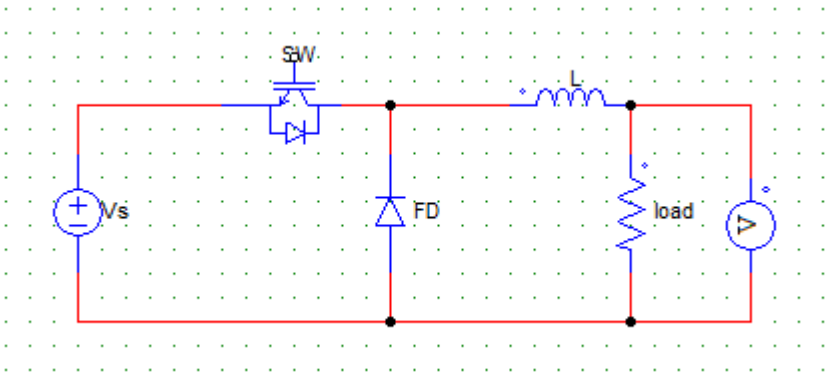
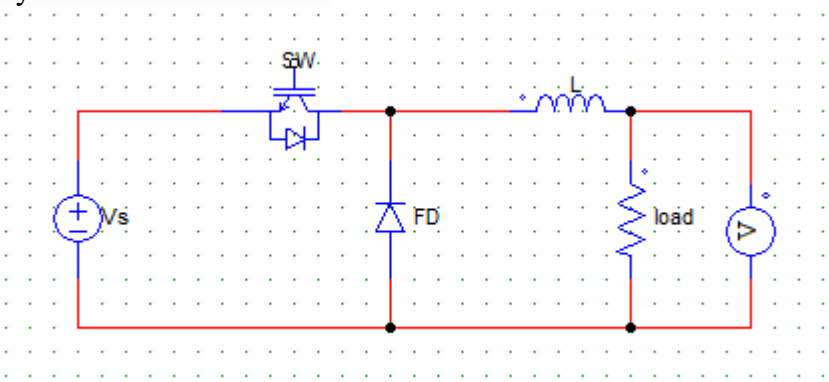
| | c) Vo = $Vs^2/\alpha$<br>d) Vo = $2Vs/\alpha\pi$ |
| 10 | The below given figure is that of a _____ (IGBT is used as a chopper switch)<br>  <br>a) step-up/step-down chopper<br>b) **step-down chopper**<br>c) step-up chopper<br>d) none of the mentioned |
| 11 | If a step up chopper's switch is always kept off then (ideally)<br>a) Vo = 0<br>b) Vo = ∞<br>c) **Vo = Vs**<br>d) Vo > Vs |
| 12 | If a step up chopper's switch is always kept open then (ideally)<br>a) Vo = 0<br>b) **Vo =** ∞<br>c) Vo = Vs<br>d) Vo > Vs |
| 13 | Find the average value of output voltage of a basic step-down chopper, with duty cycle = α and load = R Ω.<br>  <br>a) I = Vs x α<br>b) **I = (Vs x α)/R**<br>c) I = 0<br>d) I = Vs/R |
| 14 | For a step-up chopper, when the duty cycle is increased the average value of the output voltage<br>a) **increases**<br>b) decreases<br>c) remains the same<br>d) none of the mentioned |

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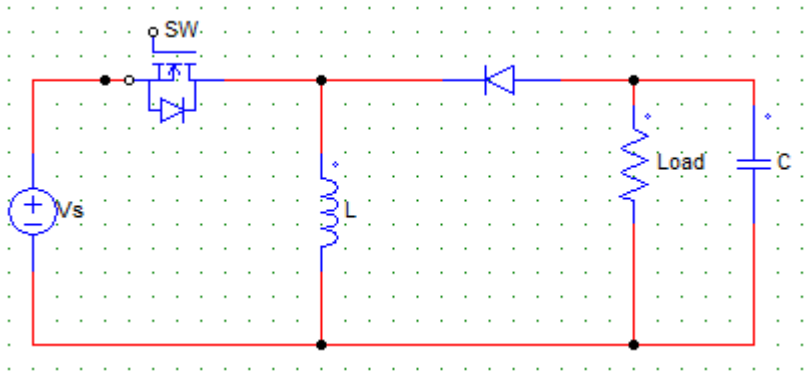
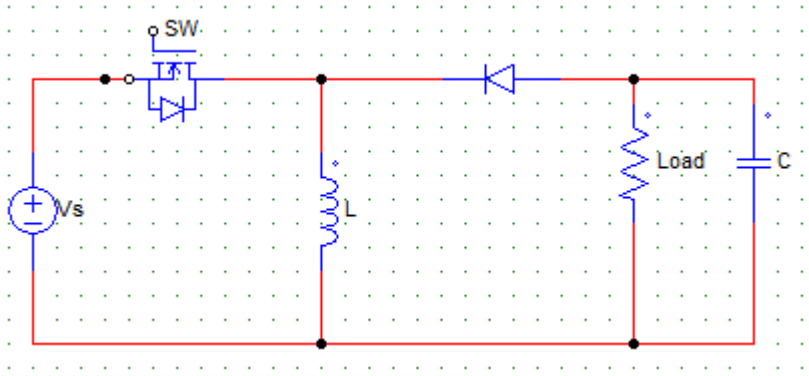
| 15 | For a step-down chopper, when the duty cycle is increased the average value of the output voltage<br>a) **increases**<br>b) decreases<br>c) remains the same<br>d) none of the mentioned |
| 16 | The below given chopper circuit is that of a<br>  <br>a) step-up chopper<br>b) step-down chopper<br>c) **step-up/step-down chopper**<br>d) none of the mentioned |
| 17 | The expression for a step-up/step-down chopper with α as the duty cycle and Vs as the dc input voltage is<br>a) Vs/1 – α<br>b) α x Vs<br>c) **Vs (α/1-α)**<br>d) Vs (α/1+α) |
| 18 | For a step-up/step-down chopper, if α (duty cycle) = 0.5 then<br>a) **Vo = Vs**<br>b) Vo < Vs<br>c) Vo > Vs<br>d) none of the mentioned |
| 19 | In the figure shown below, the capacitor C is used to<br>  <br>a) **maintain the load voltage constant**<br>b) protect the load<br>c) protect the chopper switch (SW)<br>d) maintain the load current constant |
| 20 | For a step-up/step-down chopper, if α (duty cycle) < 0.5 then<br>a) Vo = Vs |

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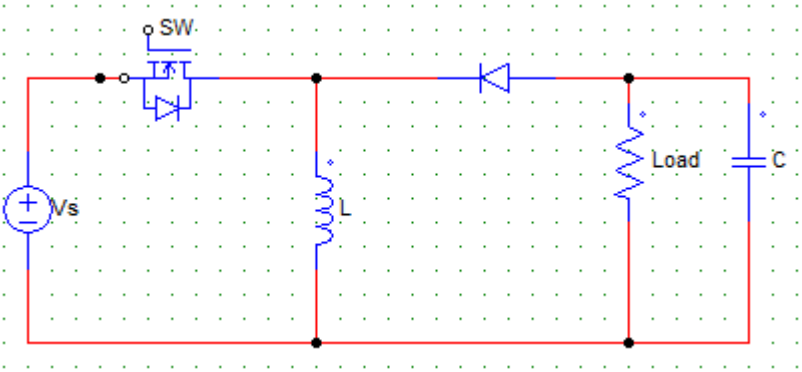
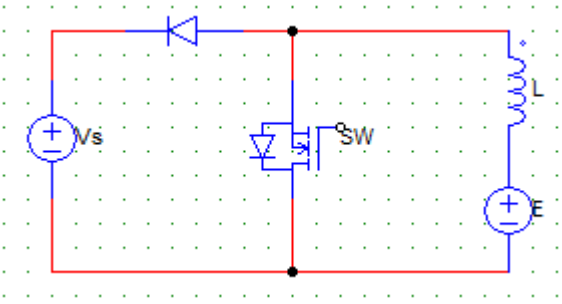
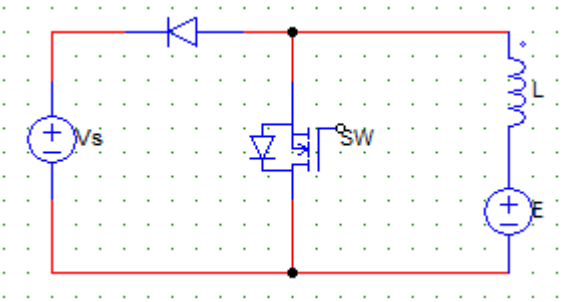
| | b) **Vo < Vs**<br>c) Vo > Vs<br>d) none of the mentioned |
| 21 | In the below shown step-up/step-down chopper circuit, when the chopper switch (SW) if first on and then off, then the current flows from path<br>  <br>a) Vs-CH-L-Vs<br>b) **L-Load-D-L**<br>c) L-D-Load-L<br>d) no current flows |
| 22 | A step-down chopper is also called as a<br>a) **first-quadrant chopper**<br>b) second-quadrant chopper<br>c) third-quadrant chopper<br>d) fourth-quadrant chopper |
| 23 | For the type-B chopper shown below<br>  <br>a) **during $T_{on}$, Vo = 0 and L stores energy**<br>b) during $T_{on}$, Vo is not 0 and L stores energy<br>c) during $T_{on}$, Vo = 0 and L releases energy<br>d) during $T_{on}$, Vo is not 0 and L releases energy |
| 24 | The below given chopper is that of a<br>  <br>a) **step-up chopper**<br>b) step-down chopper |

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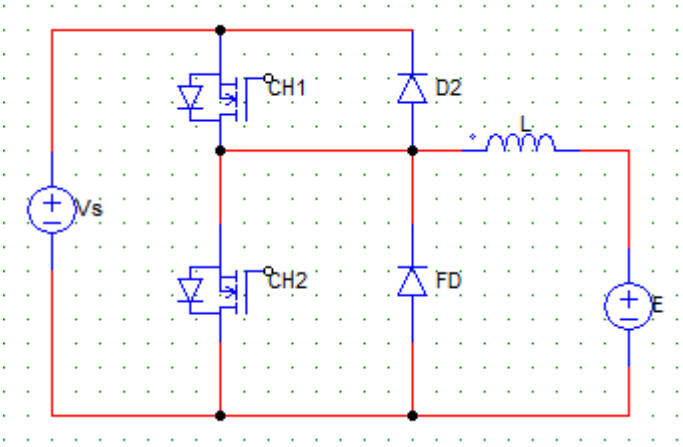
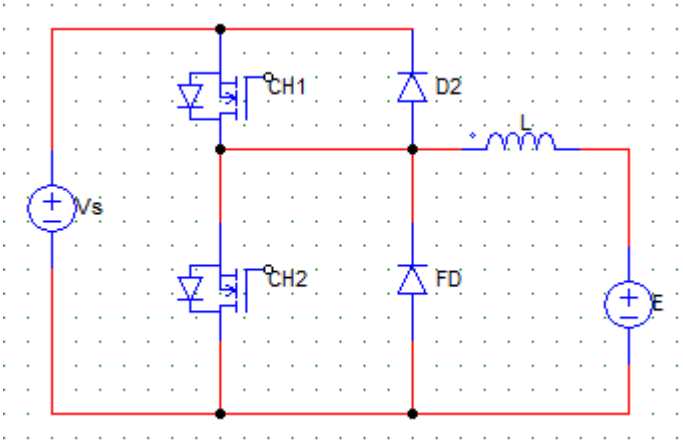
| | c) step-up/step-down chopper<br>d) depends on the duty cycle |
| 25 | The type-C chopper or two quadrant type-A chopper has<br>a) type-A and type-B choppers in series<br>b) **type-A and type-B choppers in parallel**<br>c) two type-A choppers in series<br>d) two type-A choppers in parallel |
| 26 | In case of TRC (Time Ratio Control), _____ is varied<br>a) **duty cycle**<br>b) firing angle<br>c) supply frequency<br>d) supply voltage magnitude |
| 27 | Name the below given circuit.<br>  <br><br>a) Type D chopper<br>b) Type B chopper<br>c) **Two-quadrant type A chopper**<br>d) Two-quadrant type B chopper |
| 28 | In the below given circuit output voltage will be 0 when<br>  <br><br>a) SW1 is on<br>b) FD is not conducting<br>c) D2 is conducting<br>d) **SW2 is on** |

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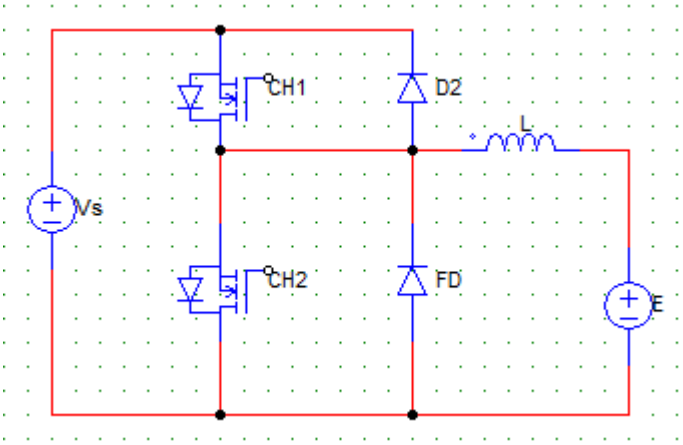
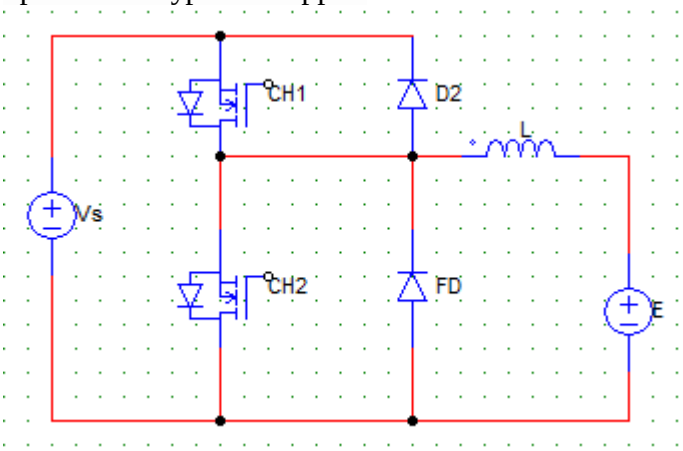
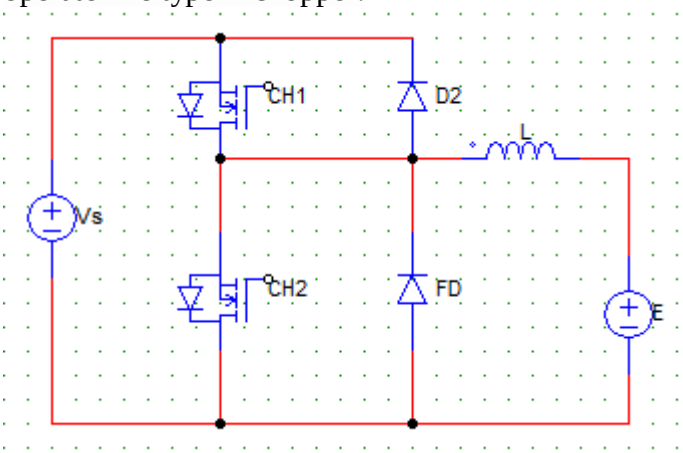
| 29 | In the below given circuit<br>  <br><br>a) current can never be zero<br>b) **current can flow in both the directions of the load**<br>c) voltage can never be zero<br>d) none of the mentioned |
| 30 | In the below given type C chopper circuit, _____ and _____ together operate like type A chopper.<br>  <br><br>a) **CH1, FD**<br>b) CH2, FD<br>c) CH1, D2<br>d) CH2, D2 |
| 31 | In the below given type C chopper circuit, _____ and _____ together operate like type B chopper.<br>  <br> |

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| | a) CH1, FD<br>b) CH2, FD<br>c) CH1, D2<br>d) **CH2, D2** |
| 32 | Which type of chopper is used in the regenerative braking of DC motors?<br>a) type A<br>b) type B<br>c) **type C**<br>d) type D |
| 33 | Type C chopper consists of<br>a) **two diodes and two switches**<br>b) one diode and one switch<br>c) one diode and three switches<br>d) three diodes and two switches |
| 34 | In a type C chopper, if only one switch is operated<br>a) **only one quadrant operation will be obtained**<br>b) two quadrant operation can be obtained<br>c) the chopper won't work<br>d) none of the mentioned |
| 35 | A type D chopper is a<br>a) **two quadrant type-B chopper**<br>b) two quadrant type-A chopper<br>c) two quadrant type-C chopper<br>d) none of the mentioned |
| 36 | In a type-D chopper<br>a) current can flow in both the directions of the load<br>b) **current cannot flow in both the directions of the load**<br>c) voltage can only be positive<br>d) voltage can only be negative |
| 37 | For a type D chopper, the average value of output voltage will be positive when<br>a) $T_{on} = T_{off}$<br>b) $T_{on} < T_{off}$<br>c) $T_{off} = 0$<br>d) $\mathbf{T_{on} > T_{off}}$ |
| 38 | For a type D chopper, if duty cycle = 0.5 then the<br>a) average voltage is positive<br>b) average voltage is negative<br>c) **average voltage is zero**<br>d) chopper cannot be operated with duty cycle = 0.5 |

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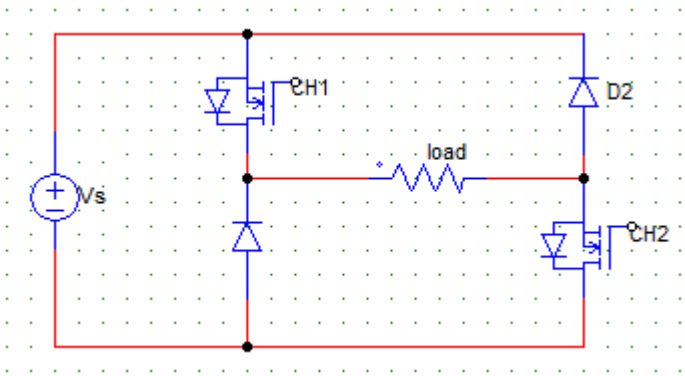
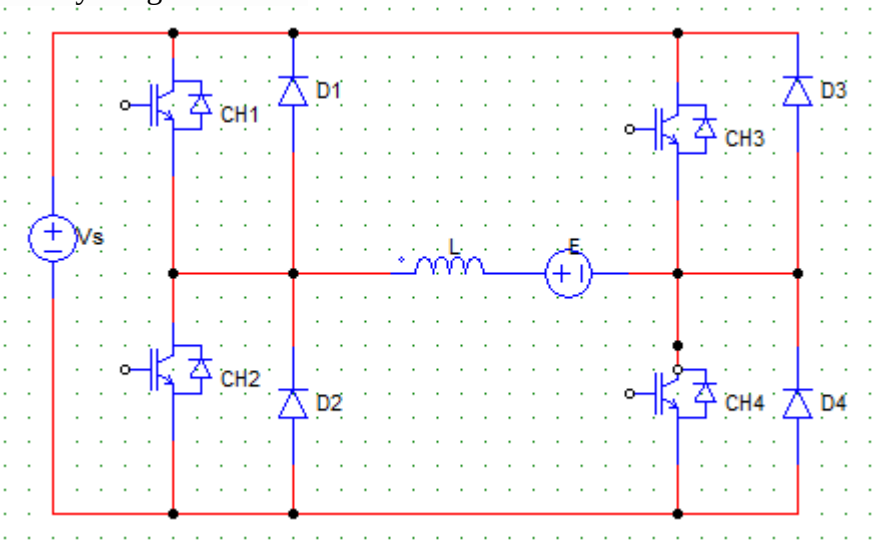
| 39 | In the below given circuit, if only SW1 is operated then<br>  <br><br>a) the power flows from load to source<br>b) the power flows from source to load<br>c) the average voltage is positive<br>d) **none of the mentioned** |
| 40 | For a type D chopper, if duty cycle $\alpha < 0.5$ then the<br>a) average voltage is positive<br>b) **average voltage is negative**<br>c) average voltage is zero<br>d) none of the mentioned |
| 41 | Identify the given circuit<br>  <br><br>a) type D chopper<br>b) two quadrant type C chopper<br>c) **type E chopper**<br>d) type F chopper |
| 42 | A type C chopper consists of _____ diodes and _____ switches in anti-parallel.<br>a) 2, 2<br>b) 3, 3<br>c) **4, 4**<br>d) 3, 4 |
| 43 | A type C chopper can operate in<br>a) Ist and IInd quadrants<br>b) IInd and IIIrd quadrants |

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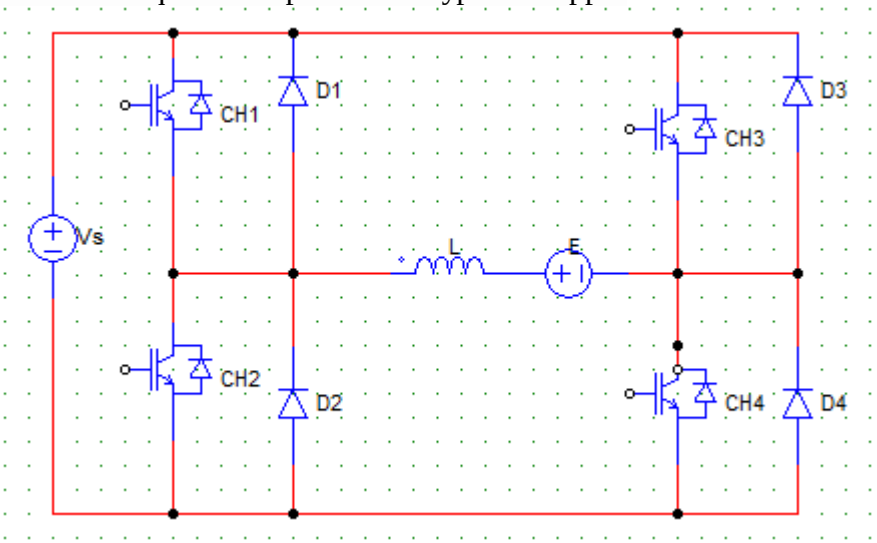
| | c) Ist, IInd and IIIrd quadrants<br>d) **all the four quadrants** |
| 44 | For the first quadrant operation of type E chopper<br>  <br><br>a) Only CH1 is on<br>b) CH1 and CH2 is on<br>c) CH1 and CH3 is on<br>d) **CH1 and CH4 is on** |
| 45 | What is the expression for load voltage when the chopper is operated in the second quadrant?<br>a) Vs<br>b) E<br>c) 0<br>d) **E + Ldi/dt** |
| 46 | The load emf E must be reversed for<br>a) first and second quadrant operation<br>b) third quadrant operation<br>c) fourth quadrant operation<br>d) **both third and fourth quadrant operation** |
| 47 | For the type E chopper to be operated in the fourth quadrant<br>a) **only one switch is operated**<br>b) two switches are operated<br>c) three switches are operated<br>d) all the switches are operated |
| 48 | In a type E chopper, if all the four chopper switches are closed simultaneously then<br>a) load is short circuited<br>b) **supply is short circuited**<br>c) both load and supply are shorted<br>d) none of the mentioned. |

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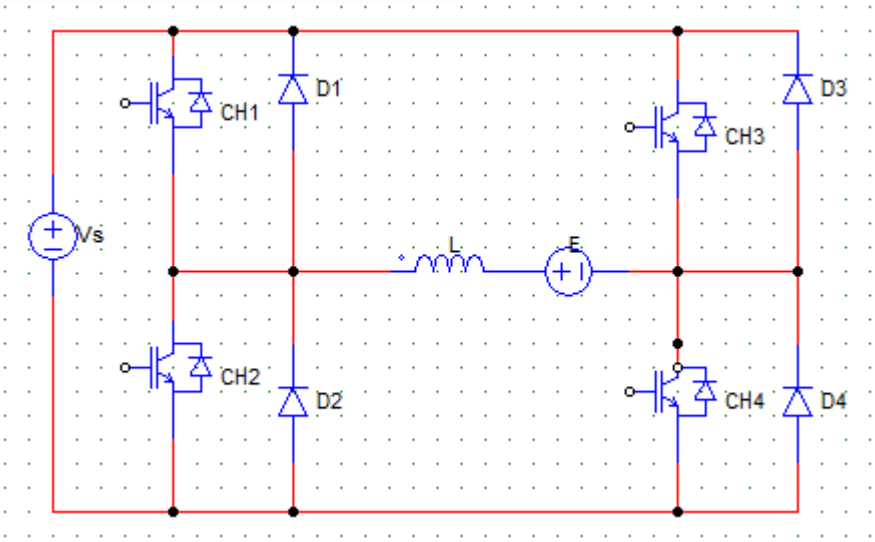
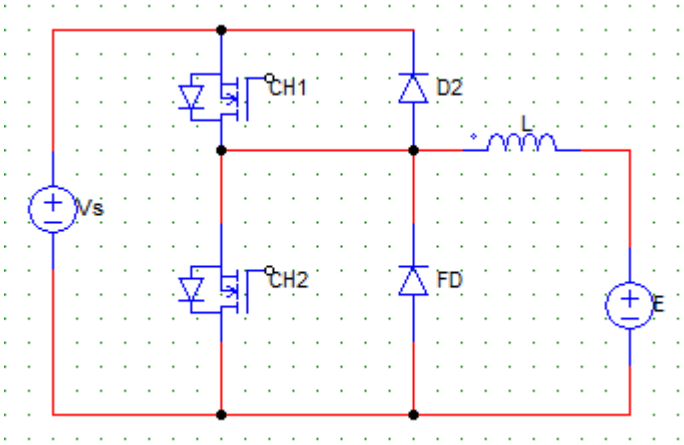
| 49 | When CH4 is turned on and then off<br>  <br><br>a) load current falls to zero<br>b) negative current freewheels through D2, D3<br>c) **positive current freewheels through D2, D3**<br>d) none of the mentioned |
| 50 | A type C chopper is operated with only positive load current. Choose the correct statement.<br>  <br><br>a) CH1 would remain idle<br>b) D2 would remain idle<br>c) CH2 would remain idle<br>d) **Both D2 and CH2 would remain idle** |

| | **Unit 4: INVERTERS AND UPS** |
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| 1 | Inverters converts<br>a) dc power to dc power<br>b) **dc power to ac power**<br>c) ac power to ac power<br>d) ac power to dc power |
| 2 | Line-commutated inverters have<br>a) AC on the supply side and DC on the load side<br>b) **AC on both supply and load side** |

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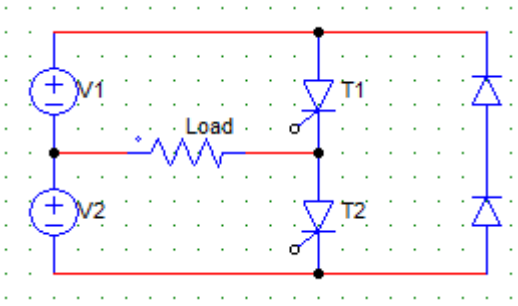
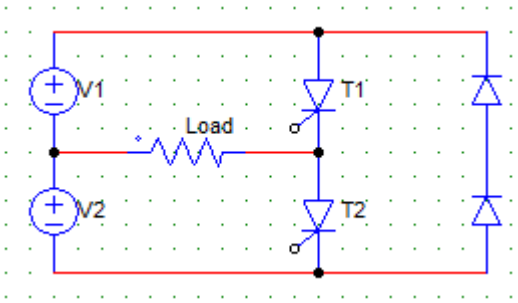
| | c) DC on both supply and load side<br>d) DC on the supply side and AC on the load side |
| 3 | In a VSI (Voltage source inverter)<br>a) **the internal impedance of the DC source is negligible**<br>b) the internal impedance of the DC source is very very high<br>c) the internal impedance of the AC source is negligible<br>d) the IGBTs are fired at 0 degrees. |
| 4 | _____ based inverters do not require self-commutation.<br>a) IGBT<br>b) GTO<br>c) PMOSFET<br>d) **SCR** |
| 5 | Identify the circuit given below.<br>  <br>a) Half wave series inverter<br>b) Full wave series inverter<br>c) **Half wave bridge inverter**<br>d) Half wave parallel inverter |
| 6 | Single phase half bridge inverters requires<br>a) two wire ac supply<br>b) two wire dc supply<br>c) three wire ac supply<br>d) **three wire dc supply** |
| 7 | What is the voltage across the R load when only T1 is conducting?<br>  <br>a) Vs<br>b) **Vs/2**<br>c) 2Vs<br>d) zero |
| 8 | In a single-phase half wave inverter _____ SCR(s) are/is gated at a time.<br>a) **one**<br>b) two<br>c) three<br>d) none of the mentioned |

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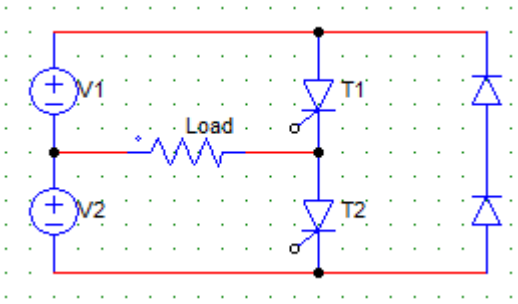
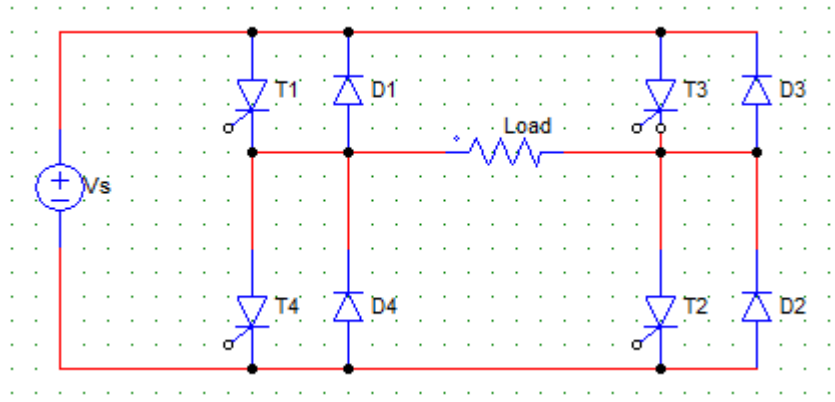
| 9 | What is the voltage across the R load when only T2 is conducting?<br>  <br><br>a) Vs<br>b) **Vs/2**<br>c) 2Vs<br>d) Zero |
| 10 | The voltage in a single phase half wave inverter varies between<br>a) Vs and 0<br>b) Vs/2 and 0<br>c) **Vs/2 and –Vs/2**<br>d) Vs and –Vs |
| 11 | The output of a single-phase half bridge inverter on R load is ideally<br>a) a sine wave<br>b) **a square wave**<br>c) a triangular wave<br>d) constant dc |
| 12 | The output current wave of a single-phase full bridge inverter on RL load is<br>a) a sine wave<br>b) a square wave<br>c) **a triangular wave**<br>d) constant dc |
| 13 | Single-phase full bridge inverters requires<br>a) 4 SCRs and 2 diodes<br>b) **4 SCRs and 4 diodes**<br>c) 2 SCRs and 4 diodes<br>d) 2 SCRs and 2 diodes |
| 14 | Identify the circuit given below.<br>  <br><br>a) Full wave series inverter<br>b) Half wave series inverter<br>c) **Full wave bridge inverter**<br>d) Full wave parallel inverter |

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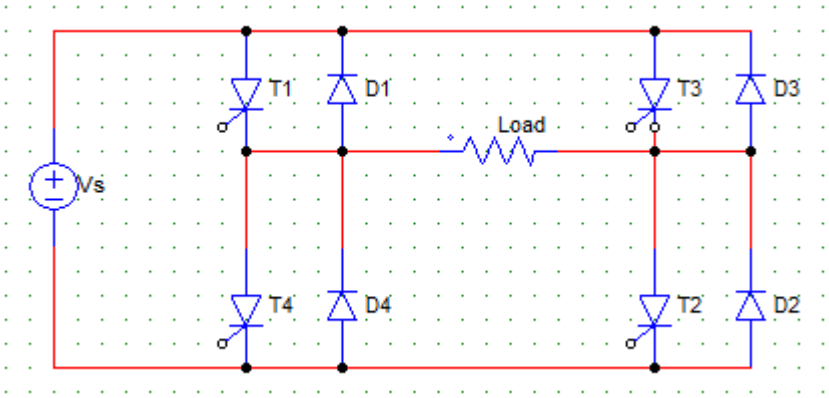
| 15 | The output voltage from a single phase full wave bridge inverter varies from<br>a) **Vs to –Vs**<br>b) Vs to zero<br>c) Vs/2 to zero<br>d) –Vs/2 to Vs/2 |
| 16 | In a single phase full wave bridge inverter, when the output is Vs or –Vs<br>a) one SCR and one diode are conducting<br>b) four SCRs are conducting<br>c) **two SCRs are conducting**<br>d) two diodes are conducting |
| 17 | In the following circuit, the diodes D1 to D4 are used to<br>  <br><br>a) reduce the switching losses<br>b) **send current back to the dc source when SCRs are off**<br>c) send current back to the load when SCRs are off<br>d) send current back to the dc source when SCRs are conducting |
| 18 | For a full wave bridge inverter, the output voltage (Vo)<br>a) Vo = Vs/2 for 0 < t < T/2<br>b) **Vo = Vs for 0 < t <T/2**<br>c) Vo = Vs for T/2< t < T<br>d) Vo = -Vs for T/2< t < 3T/2 |
| 19 | For a half wave bridge inverter, the output voltage<br>a) Vo = – Vs/2 for 0 < t < T/2<br>b) **Vo = – Vs/2 for T/2< t<T**<br>c) Vo = – Vs for 0 < t < T/2<br>d) Vo = Vs/2 for T/2< t < T |
| 20 | In a half wave circuit, forced commutation is essential when the<br>a) load is inductive<br>b) **load is resistive**<br>c) source voltage is below 150 V<br>d) none of the mentioned |
| 21 | In VSI (voltage source inverters)<br>a) both voltage and current depend on the load impedance<br>b) only voltage depends on the load impedance<br>c) **only current depends on the load impedance**<br>d) none of the mentioned |
| 22 | In the single-pulse width modulation method, the output voltage waveform is symmetrical about _____<br>a) π |

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| | b) 2π<br>c) **π/2**<br>d) π/4 |
| 23 | In the single-pulse width modulation method, the output voltage waveform is symmetrical about _____ in the negative half cycle.<br>a) 2π<br>b) **3π/2**<br>c) π/2<br>d) 3π/4 |
| 24 | The shape of the output voltage waveform in a single PWM is<br>a) square wave<br>b) triangular wave<br>c) **quasi-square wave**<br>d) sine wave |
| 25 | A three-phase bridge inverter requires minimum of _____ switching devices.<br>a) 3<br>b) 4<br>c) **6**<br>d) 8 |
| 26 | In the three-phase bridge inverter, each step consists of<br>a) 30°<br>b) **60°**<br>c) 90°<br>d) will depend on the value of the firing angle |
| 27 | In inverters, to make the supply voltage constant<br>a) an inductor is placed in series with the load<br>b) capacitor is connected in parallel to the load side<br>c) **capacitor is connected in parallel to the supply side**<br>d) none of the mentioned |
| 28 | In the 180° mode VSI, _____ devices conduct at a time.<br>a) 5<br>b) 2<br>c) **3**<br>d) 4 |
| 29 | In voltage fed thyristor inverters _____ commutation is required.<br>a) load<br>b) **forced**<br>c) self<br>d) any commutation technique can be used |
| 30 | What is the maximum line voltage value in case of a three-phase VSI in 180° mode?<br>a) 2Vs<br>b) **Vs**<br>c) 3Vs<br>d) 2Vs/3 |
| 31 | The 120° mode of operation of a three phase bridge inverter requires _____ number of steps.<br>a) 2<br>b) 4 |

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| | c) **6**<br>d) 8 |
| 32 | In case of the 120° mode of operation, _____ devices conduct at a time.<br>a) **2**<br>b) 3<br>c) 4<br>d) none of the mentioned |
| 33 | Safe commutation can be achieved in case of the _____ operating mode.<br>a) 180°<br>b) **120°**<br>c) 360°<br>d) none of the mentioned |
| 34 | Several equidistant pulses per half cycle are used in _____ type of modulation technique.<br>a) single-pulse<br>b) **multiple-pulse**<br>c) sine-pulse<br>d) equidistant-pulse |
| 35 | In the MPM method, the comparator is given _____ and _____ types of waveform at its input.<br>a) square, sine<br>b) square, quasi-square<br>c) sine, triangular<br>d) **square, triangular** |
| 36 | In MPM, the square wave is the _____ signal whereas the triangular wave is the _____ signal.<br>a) **reference, carrier**<br>b) base, reference<br>c) carrier, reference<br>d) none of the mentioned |
| 37 | In the multiple pulse width modulation method, the firing pulses are generate during the interval when the<br>a) **triangular wave exceeds the square modulating wave**<br>b) square modulating wave exceeds the triangular wave<br>c) square wave amplitude is same as the triangular wave's amplitude<br>d) none of the mentioned |
| 38 | In _____ type of modulation method, the pulse width is not equal for all the pulses.<br>a) multiple pulse width modulation<br>b) single pulse width modulation<br>c) **sinusoidal pulse width modulation**<br>d) none of the mentioned |
| 39 | In sinusoidal pulse width modulation, _____ wave is compared with a _____ type of wave.<br>a) square, sinusoidal<br>b) **sinusoidal, triangular**<br>c) sinusoidal, quasi-square<br>d) none of the mentioned |
| 40 | In the sinusoidal pulse width modulation, _____ is the carrier wave signal.<br>a) square wave |

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| | b) **triangular wave**<br>c) sinusoidal wave<br>d) quasi-square wave |
| 41 | In the sinusoidal pulse width modulation, _____ is the reference wave signal.<br>a) square wave<br>b) triangular wave<br>c) **sinusoidal wave**<br>d) quasi-square wave |
| 42 | In sinusoidal pulse width modulation, the comparator output is high when the<br>a) triangular wave has magnitude higher than the sinusoidal wave<br>b) **sinusoidal wave has magnitude higher than the triangular wave**<br>c) triangular wave has magnitude equal to the sinusoidal wave<br>d) none of the mentioned |
| 43 | In PWM, the comparator output is further given to a _____<br>a) integrator<br>b) scr devices<br>c) **trigger pulse generator**<br>d) snubber circuit |
| 44 | The modulation index (MI) is given by<br>Vr = peak value of the reference wave.<br>Vc = peak value of the carrier wave.<br>a) **Vr/Vc**<br>b) Vc/Vr<br>c) (1 + Vc/Vr)<br>d) 1/(Vc Vr) |
| 45 | By controlling the modulation index (MI), _____ can be controlled.<br>a) gain<br>b) output frequency<br>c) **harmonic content of the output voltage**<br>d) cosine component of the output voltage |
| 46 | In pulse width modulated inverters, the output voltage is controlled by controlling the<br>a) input frequency<br>b) **modulating index**<br>c) amplification factor<br>d) none of the mentioned |
| 47 | Increasing the number of pulses (N), _____<br>a) reduces the output voltage amplitude<br>b) **reduces the inverter efficiency**<br>c) improves the inverter efficiency<br>d) none of the mentioned |
| 48 | A VSI will have a better performance if its<br>a) load inductance is small and source inductance is large<br>b) **both load inductance and source inductance are small**<br>c) both load inductance and source inductance are large<br>d) none of the mentioned |
| 49 | Control of frequency and control of voltage in 3-phase inverters is<br>a) possible only through inverter control circuit<br>b) possible through the control circuit of inverter and converter |

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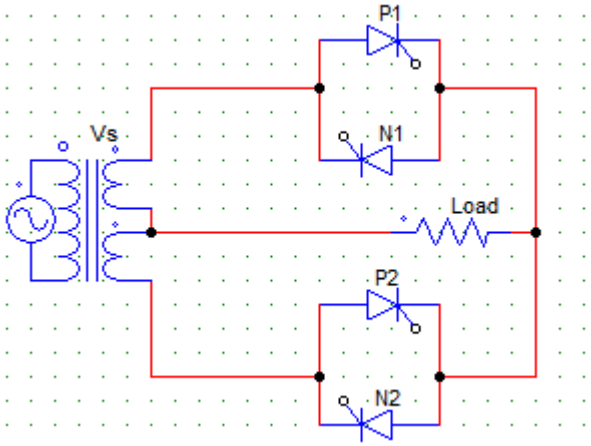
| | c) **possible through inverter control of frequency and through converter control for voltage**<br>d) none of the mentioned |
| 50 | Output voltage of a single-phase bridge inverter, fed from a fixed dc source is varied by<br>a) varying the switching frequency<br>b) **pulse-width modulation**<br>c) pulse amplitude modulation<br>d) all of the mentioned |

| | **Unit 5. CYCLOCONVERTERS** |
|---|---|
| 1 | A cycloconverter is a _____<br>a) one stage power converter<br>b) one stage voltage converter<br>c) **one stage frequency converter**<br>d) none of the mentioned |
| 2 | Applications of cycloconverters include<br>a) speed control of ac drives<br>b) induction heating<br>c) static VAr compensation<br>d) **all of the mentioned** |
| 3 | The single phase mid-point type cycloconverter uses _____ number of SCRs.<br>a) **4**<br>b) 8<br>c) 6<br>d) none of the mentioned |
| 4 | The single phase bridge type cycloconverter uses _____ number of SCRs.<br>a) 4<br>b) **8**<br>c) 6<br>d) none of the mentioned |
| 5 | In the positive half cycle from ωt = 0 to π<br>  <br><br>a) P1 and P2 are forward biased<br>b) N1 and P2 are forward biased |

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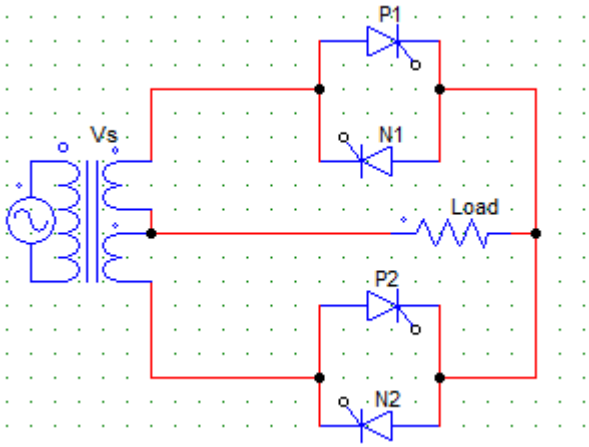
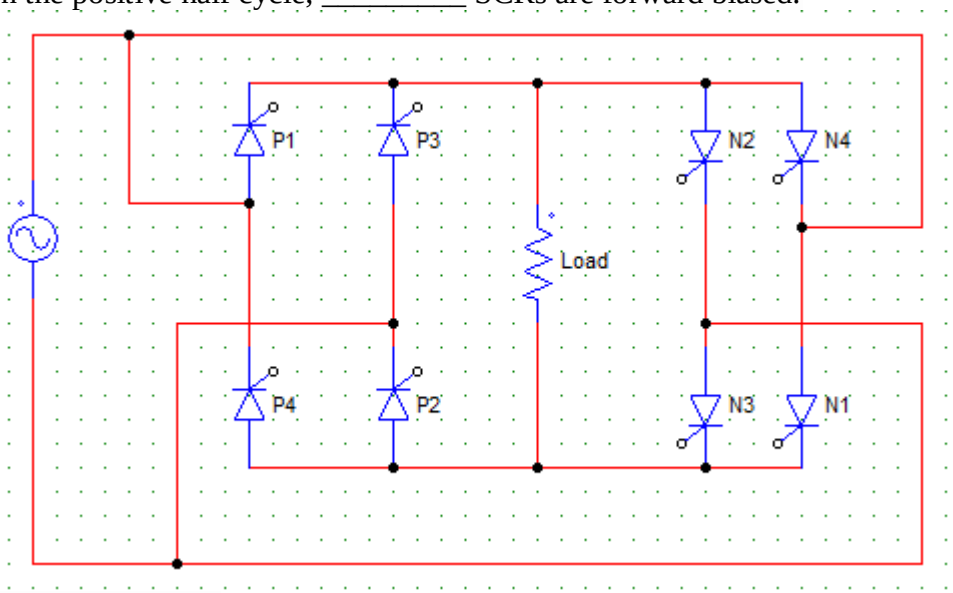
| | c) **P1 and N2 are forward biased**<br>d) None of the mentioned |
| 6 | In the below given cycloconverter circuit, _____ and _____ conduct in one cycle together.<br>  <br>a) P1, P2 and N1, N2<br>b) **P1, N2 and N1, P2**<br>c) N1, P1 and N1, P2<br>d) None of the mentioned |
| 7 | In the positive half cycle, _____ SCRs are forward biased.<br>  <br>a) **P1, P2, N1, N2**<br>b) P1, P2, P3, P4<br>c) N1, N2, N3, N4<br>d) P3, P4, N1, N2 |
| 8 | The principle of three phase cycloconverter is to<br>a) add and remove number of SCRs<br>b) **vary progressively the firing angle of the devices**<br>c) keep the firing angle as 0° for all the devices<br>d) none of the mentioned |
| 9 | In three phase cycloconverters, the reduction factor is given by<br>a) input frequency/output frequency<br>b) **(input frequency/output frequency)** $^{-1}$ |

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| | c) (input frequency/output frequency) $^{-1/2}$<br>d) (input frequency/output frequency) $^{1/2}$ |
| 10 | In a three phase half-wave cycloconverter _____<br>a) **both inverting and converting action takes place**<br>b) only inversion action takes place<br>c) only converting action takes place<br>d) none of the mentioned |
| 11 | A cycloconverter is a<br>(a) Frequency changer from higher to lower frequency with one-state conversion<br>(b) Frequency changer from higher to lower frequency with two-stage conversion<br>(c) Frequency changer from lower to higher frequency with one-stage conversion<br>(d) **Either a or c** |
| 12 | The cycloconverter require natural or forced commutation as under<br>(a) Natural commutationin bothstep-up and step down cycloconverter<br>(b) Forced commutation in both step-up and step-down cycloconverter<br>(c) **Forced commutation in step-up cycloconverter**<br>(d) Forced commutation in step-down cycloconverter |
| 13 | **The quality of output ac voltage of a cycloconverter is improved with**<br>a)Increase in output voltage at reduced frequency<br>b)**Increase in output voltage at increased frequency**<br>c) decrease in output voltage at reduced frequency<br>d) decrease in output voltage at increased frequency |
| 14 | **four quadrant chopper cannot be operated as**<br>a)One quadrant chopper<br>b)**Cycloconverter**<br>c) Inverter<br>d)Bidirectional rectifier |
| 15 | A cycloconverter converts:<br>a)AC to DC<br>b)DC to AC<br>c)DC to DC with different level<br>d)**AC to AC at different frequencies** |
| 16 | AC voltage controllers convert<br>a) fixed ac to fixed dc<br>b) variable ac to variable dc<br>c) **fixed ac to variable ac**<br>d) variable ac to fixed ac |
| 17 | In AC voltage controllers the<br>a) **variable ac with fixed frequency is obtained**<br>b) variable ac with variable frequency is obtained<br>c) variable dc with fixed frequency is obtained<br>d) variable dc with variable frequency is obtained |
| 18 | Earlier then the semiconductor technology, _____ devices were used for voltage control applications.<br>a) cycloconverters<br>b) vacuum tubes<br>c) **tap changing transformer**<br>d) induction machine |

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| 19 | The AC voltage controllers are used in _____ applications.<br>a) power generation<br>b) **electric heating**<br>c) conveyor belt motion<br>d) power transmission |
| 20 | In the principle of phase control<br>a) the load is on for some cycles and off for some cycles<br>b) **control is achieved by adjusting the firing angle of the devices**<br>c) control is achieved by adjusting the number of on off cycles<br>d) control cannot be achieved |
| 21 | A single-phase half wave voltage controller consists of<br>a) one SCR is parallel with one diode<br>b) **one SCR is anti parallel with one diode**<br>c) two SCRs in parallel<br>d) two SCRs in anti parallel |
| 22 | Pulse gating is suitable for<br>a) **R loads only**<br>b) R and RL loads<br>c) RL loads only<br>d) all types of loads |
| 23 | In continues gating<br>a) overlap angle is very high<br>b) **SCR is heated up**<br>c) size of the pulse transformer is small<br>d) commutation cannot be achieved effectively |
| 24 | High frequency gating uses a<br>a) **train of pulses**<br>b) continuous gating block<br>c) carrier signal<br>d) none of the above |
| 25 | A single-phase sinusoidal voltage controller has<br>a) one primary and n secondary windings<br>b) **one primary and (n-1) secondary windings**<br>c) n primary and n secondary windings<br>d) (n-1) primary and n secondary windings |
| 26 | Sequence control of ac voltage controllers is employed for the improvement of _____<br>a) output frequency<br>b) input frequency<br>c) commutation<br>d) **system power factor** |
| 27 | A two stage sequence control is<br>a) two SCRs in anti parallel<br>b) **two voltage controllers in parallel**<br>c) two voltage controllers in series<br>d) a voltage controller having two voltage level |
| 28 | From the below given statements regarding sequence control of ac voltage, which of them are true?<br>i) It improves system power factor<br>ii) It reduces the harmonic content at the output |

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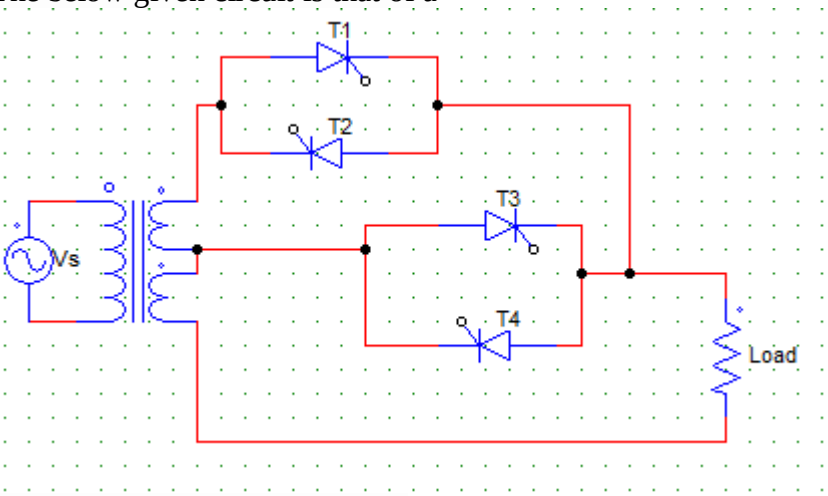
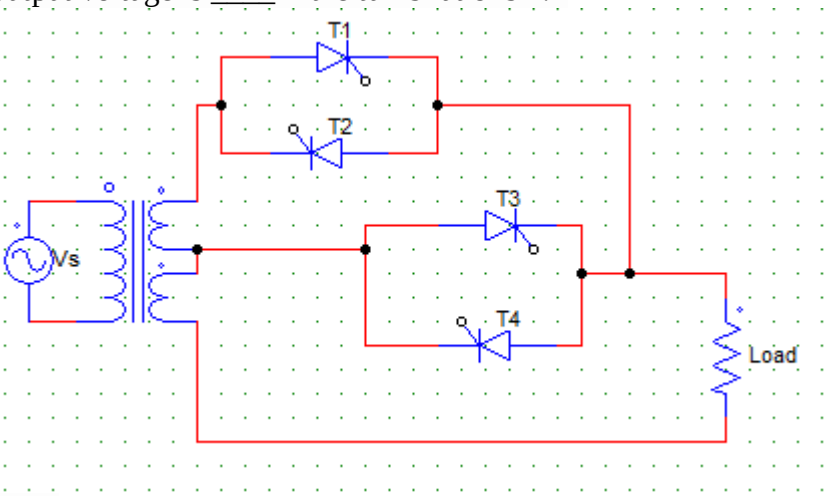
| | iii) Wider control of output voltage is possible<br>a) only (i)<br>b) only (i) and (ii)<br>c) only (i) and (iii)<br>d) **all of them are true** |
| 29 | The below given circuit is that of a<br>  <br><br>a) four stage sequence controller<br>b) **two stage sequence controller**<br>c) full wave ac voltage controller<br>d) none of the mentioned |
| 30 | If T1, T2 are kept off and T3, T4 are having a firing angle of 180° each, then the output voltage is ____ if the turns ratio is 1:1<br>  <br><br>a) Vs<br>b) √2Vs<br>c) **0**<br>d) 2Vs |

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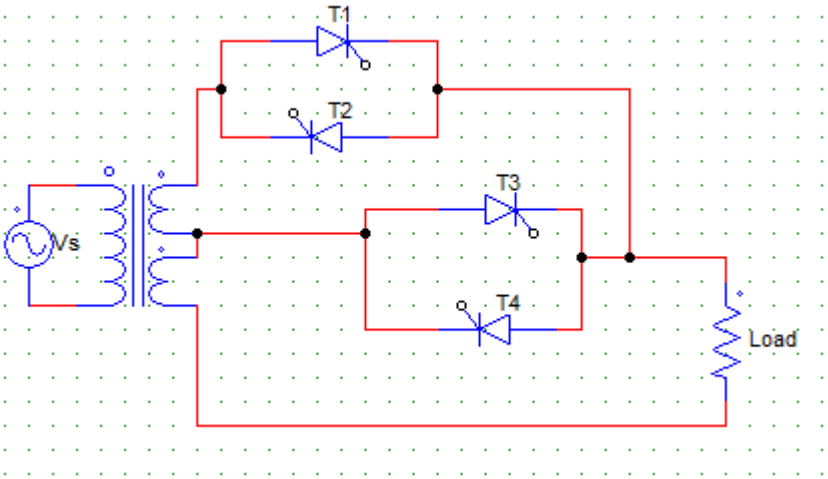
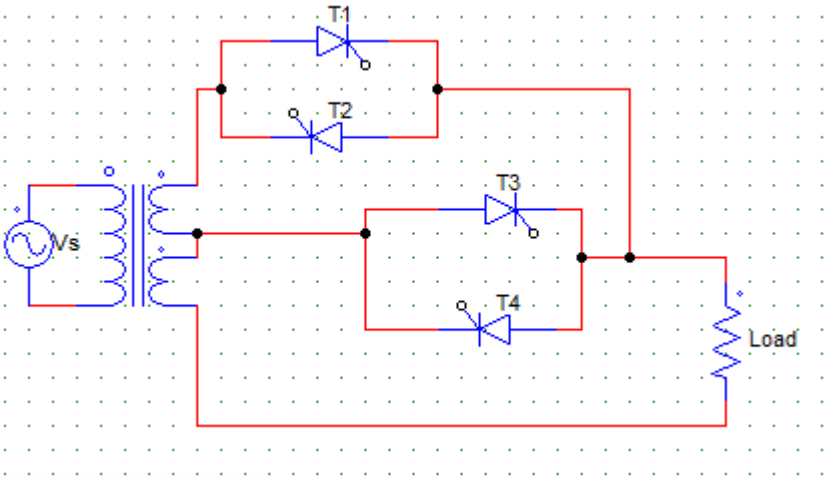
| 31 | For obtaining the output voltage control from V to 2V, the firing angle must be<br>  <br><br>a) **always 0 for T3, T4**<br>b) always 180 for T3, T4<br>c) 0 to 180 from T3, T4<br>d) none of the mentioned |
| 32 | For obtaining the output voltage control from V to 2V, the firing angle must be<br>  <br><br>a) always 0 for T1, T2<br>b) always 180 for T1, T2<br>c) **0 to 180 from T1, T2**<br>d) none of the mentioned |
| 33 | In a N-stage sequence controller, each secondary is rated for _____<br>a) n x Vs<br>b) Vs<br>c) **Vs/n**<br>d) Vs x (n-1) |
| 34 | The converter circuit which employs turn on and turn off when the voltage and/or current through the device is zero at the instant of switching is _____<br>a) a conventional converter<br>b) **a resonant converter**<br>c) a zero switching circuit<br>d) none of the mentioned |
| 35 | TRIAC is used in<br>a) chopper<br>b) speed control of induction machine |

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| | c) **speed control of universal motor**<br>d) none of the mentioned |