Program: BE Electronics Engineering

Curriculum Scheme: Revised 2012

Examination: Third Year Semester VI

Course Code: EXC604 Course Name: Power Electronics I

Time: 1 hour Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

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| Q1.  | An SCR has ………….. semiconductor layers |
| Option A: | two |
| Option B: | three |
| Option C: | four |
| Option D:  | five |
|  |  |
| Q2. | An SCR has three terminals  |
| Option A: | Cathode, anode, gate |
| Option B: | Anode, cathode, grid |
| Option C: | Drain, Source, gate |
| Option D: | emitter, collector, base |
|  |  |
| Q3. | If firing angle in an SCR circuit is decreased, the output ………… |
| Option A: | Remains the same |
| Option B: | Is increased |
| Option C: | Is decreased |
| Option D: | Becomes 0 |
|  |  |
| Q4. | The control element of an SCR is …………. |
| Option A: | cathode |
| Option B: | anode |
| Option C: | gate |
| Option D: | anode supply |
|  |  |
| Q5. | A diac has …………….. semiconductor layers |
| Option A: | two |
| Option B: | three |
| Option C: | four |
| Option D:  | five |
|  |  |
| Q6. | A UJT has …………… PN junctions |
| Option A: | one |
| Option B: | two |
| Option C: | three |
| Option D:  | four |
|  |  |
| Q7.  | In the normal operation of an SCR, anode is …………… w.r.t. cathode |
| Option A: | At zero potential |
| Option B: | at negative potential |
| Option C: | at positive potential |
| Option D:  | at equal potential |
|  |  |
| Q8.  | For full-wave rectified sine wave, form factor is |
| Option A: | 1.5 |
| Option B: | 1.41 |
| Option C: | 1.28 |
| Option D:  | 1.11 |
|  |  |
| Q9. | In a three-phase half wave diode rectifier using 3 diodes, |
| Option A: | All diodes conduct together |
| Option B: | Only two diodes conduct at a time |
| Option C: | Only one diode conducts at a time |
| Option D:  | Each diode conducts for 90 degrees |
|  |  |
| Q10.  | An SCR is turned off by ……………. |
| Option A: | Reducing anode voltage to zero |
| Option B: | Reducing gate voltage to zero |
| Option C: | Reverse biasing the gate |
| Option D:  | applying firing angle |
|  |  |
| Q11.  | The mean value of half wave rectified sine wave is |
| Option A: |  0.70 im |
| Option B: | 0.636 im |
| Option C: | 0.5 im |
| Option D:  | 0.318 lm |
|  |  |
| Q12.  | The RMS value of a half wave rectifier current is 10 A. Its value for full wave rectification would be |
| Option A: | 10A |
| Option B: | 20A |
| Option C: | 14.14A |
| Option D: | 30A |
|  |  |
| Q13. | The values of duty cycle of a chopper lies between |
| Option A: | 0 to 1 |
| Option B: | 0 to 0.5 |
| Option C: | 0.5 to 1 |
| Option D:  | -1 to 1 |
|  |  |
| Q14.  | For full-wave rectified sine wave, rms value is |
| Option A: | 0.707 im |
| Option B: | 0.6036 im |
| Option C: | 0.5 im |
| Option D:  | 0.318 im |
|  |  |
| Q15. | In a step down chopper, if Vs = 100 V and the chopper is operated at a duty cycle of 75 %. Find the output voltage. |
| Option A: | 100V |
| Option B: | 75V |
| Option C: | 50V |
| Option D:  | 25V |
|  |  |
| Q16.  | Find the output voltage for a step-up chopper when it is operated at a duty cycle of 50 % and Vs = 240 V. |
| Option A: | 240V |
| Option B: | 120V |
| Option C: | 480V |
| Option D:  | 860V |
|  |  |
| Q17. |  Which diodes are used to reduce the inductor current to zero? |
| Option A: | tunnel diode |
| Option B: | zener diode |
| Option C: | free wheeling diode |
| Option D: | Shockley Diode |
|  |  |
| Q18. | The firing angle in an uncontrolled rectifier is |
| Option A: | 30 |
| Option B: | 0 |
| Option C: | 60 |
| Option D:  | 90 |
|  |  |
| Q19.  | The minimum current which anode current must attain to continue to remain in forward conduction mode even when gate current is removed is called |
| Option A: | forward current |
| Option B: | latching current |
| Option C: | reverse current |
| Option D:  | holding current |
|  |  |
| Q20. | In a half-wave rectifier, the |
| Option A: | current & voltage both are bi-directional |
| Option B: | current & voltage both are uni-directional |
| Option C: | current is always unidirectional but the voltage can be bi-directional or unidirectional |
| Option D: | current can be bi-directional or unidirectional but the voltage is always unidirectional |
|  |  |
| Q21. |  For a step-up chopper, when the duty cycle is increased the average value of the output voltage |
| Option A: | Remains the same |
| Option B: | Is increased |
| Option C: | Is decreased |
| Option D:  | Becomes 0 |
|  |  |
| Q22.  | The ratio of rms value of all harmonics to rms value of fundamental component is called as, |
| Option A: | harmonic factor of nth harmonic |
| Option B: | total harmonic distortion |
| Option C: | distortion factor |
| Option D:  | lowest order harmonic |
|  |  |
| Q23. | Ripple factor is the ratio of |
| Option A: | Rms value of the ac component of load voltage to the dc voltage |
| Option B: | Average value of the ac component of load voltage to the peak value of voltage |
| Option C: | Average value of the dc component of load voltage to the ac voltage |
| Option D:  | Peak value of the dc component of load voltage to the ac voltage |
|  |  |
| Q24.  | The contribution of each harmonic to the harmonic distortion is called as, |
| Option A: | harmonic factor of nth harmonic |
| Option B: | total harmonic distortion |
| Option C: | distortion factor |
| Option D:  | lowest order harmonic |
|  |  |
| Q25. | the minimum forward current that flows through the SCR to keep it in forward conduction mode is called as, |
| Option A: | forward current |
| Option B: | latching current |
| Option C: | reverse current |
| Option D:  | holding current |