

NADAR SARASWATHI COLLEGE OF ENGINEERING AND TECHNOLOGY, THENI.

Course/Branch : BE/EEE	Year / Semester : III/V	Format No.	NAC/TLP-07a.13
Subject Code : EE8553	Subject Name : Power Electronics	Rev. No.	02
Unit No : 1	Unit Name : Introduction	Date	30.09.2020

OBJECTIVE TYPE QUESTION BANK

S. No.	Objective Questions (MCQ / True or False / Fill up with Choices)	BTL
1	Which of the following devices does not belong to the transistor family? a) IGBT b) MOSFET c) GTO d) BJT	L1
2	A power transistor is a a) three layer, three junction device b) three layer, two junction device c) two layer, one junction device d) four layer, three junction device	L1
3	In a power transistor, ____ is the controlled parameter. a) VBE b) VCE c) I_B d) I_C	L2
4	A power transistor is a ____ device. a) two terminal, bipolar, voltage controlled b) two terminal, unipolar, current controlled c) three terminal, unipolar, voltage controlled d) three terminal, bipolar, current controlled	L1
5	The forward current gain α is given by a) I_C/I_B b) I_C/I_E c) I_E/I_C d) I_E/I_B	L2
6	A power BJT is used as a power control switch by biasing it in the cut off region (off state) or in the saturation region (on state). In the on state a) both the base-emitter & base-collector junctions are forward biased b) the base-emitter junction is reverse biased, and the base collector junction is forward biased c) the base-emitter junction is forward biased, and the base collector junction is reversed biased d) both the base-collector & the base-emitter junctions are reversed biased	L2
7	Which of the following terminals does not belong to the MOSFET? a) Drain b) Gate c) Base d) Source	L1
8	Choose the correct statement a) MOSFET is a uncontrolled device b) MOSFET is a voltage controlled device c) MOSFET is a current controlled device d) MOSFET is a temperature controlled device	L2

NADAR SARASWATHI COLLEGE OF ENGINEERING AND TECHNOLOGY, THENI.

Course/Branch : BE/EEE	Year / Semester :III/V	Format No.	NAC/TLP-07a.13
Subject Code :EE8553	Subject Name :Power Electronics	Rev. No.	02
Unit No :1	Unit Name :Introduction	Date	30.09.2020

OBJECTIVE TYPE QUESTION BANK

9	<p>i)The gate circuit impedance of MOSFET is higher than that of a BJT ii) The gate circuit impedance of MOSFET is lower than that of a BJT iii) The MOSFET has higher switching losses than that of a BJT iv) The MOSFET has lower switching losses than that of a BJT a) Both i & ii b) Both ii & iv c) Both i & iv d) Only ii</p>	L2
10	<p>Choose the correct statement a) MOSFET is a unipolar, voltage controlled, two terminal device b) MOSFET is a bipolar, current controlled, three terminal device c) MOSFET is a unipolar, voltage controlled, three terminal device d) MOSFET is a bipolar, current controlled, two terminal device</p>	L2
11	<p>When latch-up occurs in an IGBT a) I_g is no longer controllable b) I_c is no longer controllable c) the device turns off d) I_c increases to a very high value</p>	L2
12	<p>A latched up IGBT can be turned off by a) forced commutation of current b) forced commutation of voltage c) use of a snubber circuit d) none of the mentioned</p>	L2
13	<p>In an IGBT, during the turn-on time a) V_{ge} decreases b) I_c decreases c) V_{ce} decreases d) none of the mentioned</p>	L2
14	<p>Choose the false statement. a) SCR is a bidirectional device b) SCR is a controlled device c) In SCR the gate is the controlling terminal d) SCR are used for high-power applications</p>	L2
15	<p>In the SCR structure the gate terminal is located a) near the anode terminal b) near the cathode terminal c) in between the anode & cathode terminal d) none of the mentioned</p>	L2
16	<p>The static V-I curve for the SCR is plotted for a) I_a (anode current) vs I_g (gate current), V_a (anode – cathode voltage) as a parameter b) I_a vs V_a with I_g as a parameter c) V_a vs I_g with I_a as a parameter d) I_g vs V_g with I_a as a parameter</p>	L2

NADAR SARASWATHI COLLEGE OF ENGINEERING AND TECHNOLOGY, THENI.

Course/Branch : BE/EEE	Year / Semester :III/V	Format No.	NAC/TLP-07a.13
Subject Code :EE8553	Subject Name :Power Electronics	Rev. No.	02
Unit No :1	Unit Name :Introduction	Date	30.09.2020

OBJECTIVE TYPE QUESTION BANK

17	If the cathode of an SCR is made positive with respect to the anode & no gate current is applied then a) all the junctions are reversed biased b) all the junctions are forward biased c) only the middle junction is forward biased d) only the middle junction is reversed biased	L2
18	For an SCR in the reverse blocking mode, (practically) a) leakage current does not flow b) leakage current flows from anode to cathode c) leakage current flows from cathode to anode d) leakage current flows from gate to anode	L2
19	With the anode positive with respect to the cathode & the gate circuit open, the SCR is said to be in the a) reverse blocking mode b) reverse conduction mode c) forward blocking mode d) forward conduction mode	L2
20	For an SCR in the forward blocking mode (practically) a) leakage current does not flow b) leakage current flows from anode to cathode c) leakage current flows from cathode to anode d) leakage current flows from gate to anode	L2
21	di/dt protection is provided to the thyristor by a) connecting an inductor in parallel across the load b) connecting an inductor in series with the load c) connecting an inductor in parallel across the gate terminal d) connecting an inductor in series with the gate	L2
22	The local hot spot formation in the cross-section of the SCR is avoided by a) reducing the junction temperature b) applying gate current nearer to the maximum gate current c) using only R loads d) proper mounting of the SCR on heat sink	L2
23	The dv/dt protection is provided in order to a) limit the power loss b) reduce the junction temperature c) avoid accidental turn-on of the device d) avoiding sudden large voltage across the load	L2
24	dv/dt protection is provided to the SCR by a) connecting a capacitor in parallel with the load b) connecting an inductor in series with the load c) connecting a capacitor & resister in parallel with the device d) connecting an inductor & resister in parallel with the device	L2
25	The effect of over-voltages on SCR are minimized by using a) RL circuits	L2

NADAR SARASWATHI COLLEGE OF ENGINEERING AND TECHNOLOGY, THENI.

Course/Branch : BE/EEE	Year / Semester : III/V	Format No.	NAC/TLP-07a.13
Subject Code : EE8553	Subject Name : Power Electronics	Rev. No.	02
Unit No : 1	Unit Name : Introduction	Date	30.09.2020

OBJECTIVE TYPE QUESTION BANK

	b) Circuit breakers c) Varistors d) di/dt inductor		
26	Over-current protection in SCRs is achieved through the use of a) Varistors b) Snubber Circuits c) F.A.C.L.F & C.B. d) Zener diodes		L2
27	False triggering of the SCRs by varying flux & noise is avoided by using a) F.A.C.L.F & C.B b) Shielded cables & twisted gate leads c) Snubber circuits d) di/dt inductor in series with the gate terminal		L2
28	The forward break over voltage is the a) anode-cathode voltage at which conduction starts with gate signal applied b) anode-cathode voltage at which conduction starts with no gate signal applied c) gate voltage at which conduction starts with no anode-cathode voltage d) gate voltage at which conduction starts with anode-cathode voltage applied		L2
29	For a forward conducting SCR device, as the forward anode to cathode voltage is increased a) the device turns on at higher values of gate current b) the device turns on at lower values of gate current c) the forward impedance of the device goes on increasing d) the forward impedance of the device goes on decreasing		L2
30	A thyristor can be brought from the forward conduction mode to forward blocking mode by a) the dv/dt triggering method b) applying a negative gate signal c) applying a positive gate signal d) applying a reverse voltage across anode-cathode terminals		L2
31	Usually the forward voltage triggering method is not used to turn-on the SCR because a) it increases losses b) it causes noise production c) it may damage the junction & destroy the device d) relatively it's an inefficient method		L2
32	How to protect thyristor from thermal conditions? a) Use of snubber circuit. b) Using heat sink. c) Using CB and fuse. d) Using equalizing circuit.		L2

NADAR SARASWATHI COLLEGE OF ENGINEERING AND TECHNOLOGY, THENI.

Course/Branch : BE/EEE	Year / Semester : III/V	Format No.	NAC/TLP-07a.13
Subject Code : EE8553	Subject Name : Power Electronics	Rev. No.	02
Unit No : 1	Unit Name : Introduction	Date	30.09.2020

OBJECTIVE TYPE QUESTION BANK

33	The forward break over voltage is maximum when a) Gate current = ∞ b) Gate current = 0 c) Gate current = $-\infty$ d) It is independent of gate current	L2
34	For the SCR to remain in the ON (conducting) state a) gate signal is continuously required b) no continuous gate signal is required c) no forward anode-cathode voltage is required d) negative gate signal is continuously required	L2
35	The value of anode current required to maintain the conduction of an SCR even though the gate signal is removed is called as the a) holding current b) latching current c) switching current d) peak anode current	L2
36	In the reverse blocking mode the middle junction (J_2) has the characteristics of that of a) transistor b) capacitor c) inductor d) none of the mentioned	L2
37	_____ are semiconductor thyristor devices which can be turned-on by light of appropriate wavelengths. a) LGTOs b) LASERS c) MASERS d) LASCRs	L2
38	During the transition time or turn-on time a) The forward anode voltage decreases from 90 % to 10 % & the anode current also decreases from 90 to 10 % of the initial value b) The forward anode voltage increases from 10 % to 90 % & the anode current also increases from 10 % to 90 % of the initial value c) The forward anode voltage decreases from 90 % to 10 % & the anode current increases from 10 % to 90 % of the initial value d) The forward anode voltage increases from 10 % to 90 % & the anode current decreases from 90% to 10% of the initial value	L2
39	The minimum value of anode current below which it must fall to completely turn-off the device is called as the a) holding current value b) latching current value c) switching current value d) peak anode current value	L2

NADAR SARASWATHI COLLEGE OF ENGINEERING AND TECHNOLOGY, THENI.

Course/Branch : BE/EEE	Year / Semester : III/V	Format No.	NAC/TLP-07a.13
Subject Code : EE8553	Subject Name : Power Electronics	Rev. No.	02
Unit No : 1	Unit Name : Introduction	Date	30.09.2020

OBJECTIVE TYPE QUESTION BANK

40	To avoid commutation failure a) circuit turn-off time must be greater than the thyristor turn-off time b) circuit turn-off time must be lesser than the thyristor turn-off time c) circuit turn-off time must be equal to the thyristor turn-off time d) none of the above mentioned	L2
41	The class A commutation or load commutation is possible in case of a) dc circuits only b) ac circuits only c) both DC and AC circuits d) none of the above mentioned	L2
42	The type of commutation when the load is commutated by transferring its load current to another incoming thyristor is a) class A or load commutation b) class B or resonant commutation c) class C or complementary commutation d) class D or impulse commutation	L2
43	The type of commutation in which the pulse to turn off the SCR is obtained by separate voltage source is a) class B commutation b) class C commutation c) class D commutation d) class E commutation	L2
44	The natural reversal of ac supply voltage commutates the SCR in case of a) forced commutation b) only line commutation c) only natural commutation d) both line & natural commutation	L2
45	_____ commutation technique is commonly employed in series inverters. a) line b) load c) forced d) external-pulse	L2
46	Natural commutation of an SCR takes place when a) voltage across the device becomes negative b) voltage across the device becomes positive c) gate current becomes zero d) anode current becomes zero	L2
47	_____ commutation is usually used in phase-controlled rectifiers a) line b) load c) forced d) external-pulse	L2

NADAR SARASWATHI COLLEGE OF ENGINEERING AND TECHNOLOGY, THENI.

Course/Branch : BE/EEE	Year / Semester :III/V	Format No.	NAC/TLP-07a.13
Subject Code :EE8553	Subject Name :Power Electronics	Rev. No.	02
Unit No :1	Unit Name :Introduction	Date	30.09.2020

OBJECTIVE TYPE QUESTION BANK

48	Parallel-capacitor commutation is a) line commutation b) load commutation c) forced commutation d) external-pulse commutation	L2
49	Class E commutation is a/an a) line commutation technique b) load commutation technique c) forced commutation technique d) external-pulse commutation technique	L2
50	The average output voltage is maximum when SCR is triggered at $\omega t =$ a) π b) 0 c) $\pi/2$ d) $\pi/4$	L2

