# KADI SARVA VISHVAVIDYALAYA

### **B.E. SEMESTER V EXAMINATION November 2016**

SUBJECT CODE: EE-504

**SUBJECT NAME: Power Electronics** 

DATE: 17/11/2016

TIME: 10:30 to 1:30 p.m.

**TOTAL MARKS: 70** 

#### Instructions:

- 1. Answer each section in separate answer sheets
- 2. Use of scientific Calculator is permitted
- 3. All questions are compulsory
- 4. Indicate clearly the options you attempted along with the respective question number.
- 5. Use the last page of your supplementary for rough work

#### Section - I

Q-1	Answer the following questions	
A	Explain basic structure and characteristic of SCR.	5
В	Explain type C chopper with appropriate wave form	5
C	Explain single phase full wave Mid- point rectifier with R-L Load.	5
	OR	
Q-1C	Explain current source inverter in detail.	5
Q-2	Answer the following questions	
	Explain single phase half wave rectifier with RL load and freewheeling diode.	5
A	Explain difference between MOSFET and IGBT.	5
В	BERNELLE NEW TOTAL CONTROL OF THE SECOND CO	
	OR	=
Q-2A	Explain step up cycloconverter with circuit diagrams and waveforms.	
В	Explain performance parameter of inverter.	5
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Q-3	Answer the following questions	
A	Enlist different control strategies of Chopper and explain any one.	
В	Explain single phase parallel inverter.	5
	OR	
Q-3A	Explain step up chopper with appropriate wave form.	5
В	Explain two transistor model of SCR.	5

## Section - II

Q-4	Answer the following questions	
A	Draw and explain Transfer, Output and Switching characteristics of power MOSFET in detail.	5
В	Explain single phase semi converter with resistive load.	5
C	Explain integral cycle control for AC voltage controller.	5
	OR	
Q-4C	Explain constructional details of thyristor. Also explain its V-I characteristic.	5
Q-5	Answer the following questions	
A	Describe commutation of SCR. Explain any one commutation technique in detail.	5
В	Explain Three phase Voltage Source Inverter which has three switches on at a	5
	time with appropriate circuit and wave form.	
	OR CONTROL OF CONTROL	
Q-5A	Explain di/dt and dv/dt protection for SCR.	5
В	A single phase half wave AC voltage controller feeds a load of R=50 ohm with an input voltage 230V 50Hz AC supply firing angle is 45° Determine, RMS value of output voltage and power delivered to the load	5
	HEED IN 18TH PRINTED TO THE PRINTED	
Q-6	Answer the following questions	
A	Explain three phase rectifier with RL load with appropriate circuit and wave form.	5
В	Explain dual converter with appropriate circuit and wave form.	5
	OR	
Q-6A	What is cycloconverter? Enumerate some of its industrial applications.	5
В	A step up chopper has input voltage of 220V and output voltage of 660V. If the non-conducting time of thyristor is 100us, compute the time period of output voltage.	5
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#### KADI SARVA VISHVAVIDYALAYA

#### **B.E. SEMESTER V EXAMINATION (Nov/2014)**

SUBJECT CODE: EE-504

**SUBJECT NAME: Power Electronics** 

DATE: 20/11/2014

TIME: 10:30 to 1:30

**TOTAL MARKS: 70** 

#### Instructions:

- 1. Answer each section in separate answer sheets
- 2. Use of scientific Calculator is permitted
- 3. All questions are compulsory
- 4. Indicate clearly the options you attempted along with the respective question number.
- 5. Use the last page of your supplementary for rough work

#### Section - I

A Explain basic structure and equivalent characteristic of IGBT.  B Explain type B chopper with appropriate wave form  C Explain single phase full wave Mid- point converter in rectifier mode with R-L Load.  OR  C Explain current source inverter in detail.  OR  C Answer the following questions  A Explain single phase half wave circuit with RL load and freewheeling diode.  B Explain thyristor gate characteristics in detail.  OR  A Explain three phase half wave cycloconverter.  B Explain single phase half bridge inverter with waveforms.  OR  Answer the following questions  A Enlist and explain different control strategies of Chopper.  Explain single phase parallel inverter.  OR  Explain Type E chopper with appropriate wave form.	Q-1	Answer the following questions	
B Explain type B chopper with appropriate wave form C Explain single phase full wave Mid- point converter in rectifier mode with R-L Load.  OR C Explain current source inverter in detail.  OR C Explain single phase half wave circuit with RL load and freewheeling diode. B Explain thyristor gate characteristics in detail.  OR A Explain three phase half wave cycloconverter. B Explain single phase half bridge inverter with waveforms.  OR Answer the following questions A Enlist and explain different control strategies of Chopper. B Explain single phase parallel inverter.  OR A Explain Type E chopper with appropriate wave form. Explain basic structure, equivalent circuit and I-V characteristic of uni-junction		Explain basic structure and equivalent characteristic of IGBT.	5
C Explain single phase full wave Mid- point converter in rectifier mode with R-L Load.  OR  C Explain current source inverter in detail.  OR  C Explain single phase half wave circuit with RL load and freewheeling diode.  B Explain single phase half wave circuit with RL load and freewheeling diode.  OR  A Explain thyristor gate characteristics in detail.  OR  A Explain three phase half wave cycloconverter.  Explain single phase half bridge inverter with waveforms.  OR  Answer the following questions  A Enlist and explain different control strategies of Chopper.  Explain single phase parallel inverter.  OR  A Explain Type E chopper with appropriate wave form.  Explain basic structure, equivalent circuit and I-V characteristic of uni-junction	В		5
C Explain current source inverter in detail.  Q-2 Answer the following questions A Explain single phase half wave circuit with RL load and freewheeling diode. B Explain thyristor gate characteristics in detail.  OR  A Explain three phase half wave cycloconverter. B Explain single phase half bridge inverter with waveforms.  Q-3 Answer the following questions A Enlist and explain different control strategies of Chopper.  B Explain single phase parallel inverter.  OR  A Explain Type E chopper with appropriate wave form.  Explain basic structure, equivalent circuit and I-V characteristic of uni-junction		Explain single phase full wave Mid-point converter in rectifier mode with R-L	5
Q-2 Answer the following questions A Explain single phase half wave circuit with RL load and freewheeling diode. B Explain thyristor gate characteristics in detail. OR A Explain three phase half wave cycloconverter. Explain single phase half bridge inverter with waveforms.  Q-3 Answer the following questions A Enlist and explain different control strategies of Chopper. B Explain single phase parallel inverter. OR A Explain Type E chopper with appropriate wave form. Explain basic structure, equivalent circuit and I-V characteristic of uni-junction		OR	
A Explain single phase half wave circuit with RL load and freewheeling diode.  B Explain thyristor gate characteristics in detail.  OR  A Explain three phase half wave cycloconverter.  Explain single phase half bridge inverter with waveforms.  OR  Answer the following questions  A Enlist and explain different control strategies of Chopper.  Explain single phase parallel inverter.  OR  A Explain Type E chopper with appropriate wave form.  Explain basic structure, equivalent circuit and I-V characteristic of uni-junction	C	Explain current source inverter in detail.	5
A Explain single phase half wave circuit with RL load and freewheeling diode.  B Explain thyristor gate characteristics in detail.  OR  A Explain three phase half wave cycloconverter.  Explain single phase half bridge inverter with waveforms.  OR  Answer the following questions  A Enlist and explain different control strategies of Chopper.  Explain single phase parallel inverter.  OR  A Explain Type E chopper with appropriate wave form.  Explain basic structure, equivalent circuit and I-V characteristic of uni-junction	Q-2	Answer the following questions	
B Explain thyristor gate characteristics in detail.  OR  A Explain three phase half wave cycloconverter.  Explain single phase half bridge inverter with waveforms.  O-3 Answer the following questions  A Enlist and explain different control strategies of Chopper.  Explain single phase parallel inverter.  OR  A Explain Type E chopper with appropriate wave form.  Explain basic structure, equivalent circuit and I-V characteristic of uni-junction	-	Explain single phase half wave circuit with RL load and freewheeling diode.	5
A Explain three phase half wave cycloconverter. B Explain single phase half bridge inverter with waveforms.  Q-3 Answer the following questions A Enlist and explain different control strategies of Chopper. B Explain single phase parallel inverter.  OR  A Explain Type E chopper with appropriate wave form. B Explain basic structure, equivalent circuit and I-V characteristic of uni-junction  5	В		5
B Explain single phase half bridge inverter with waveforms.  Q-3 Answer the following questions A Enlist and explain different control strategies of Chopper. B Explain single phase parallel inverter.  OR A Explain Type E chopper with appropriate wave form. B Explain basic structure, equivalent circuit and I-V characteristic of uni-junction  5		수 보다는 바라 보니 아이들은 얼마나 가는 아이들이 되었다. 그 아이들은 그리는 아이들은 아이들은 아이들은 아이들은 아이들은 아이들은 아이들은 아이들은	
B Explain single phase half bridge inverter with waveforms.  Q-3 Answer the following questions A Enlist and explain different control strategies of Chopper. B Explain single phase parallel inverter.  OR A Explain Type E chopper with appropriate wave form. B Explain basic structure, equivalent circuit and I-V characteristic of uni-junction  5	A	Explain three phase half wave cycloconverter.	5
A Enlist and explain different control strategies of Chopper.  B Explain single phase parallel inverter.  OR  A Explain Type E chopper with appropriate wave form.  Explain basic structure, equivalent circuit and I-V characteristic of uni-junction  5	В		5
A Enlist and explain different control strategies of Chopper.  B Explain single phase parallel inverter.  OR  A Explain Type E chopper with appropriate wave form.  Explain basic structure, equivalent circuit and I-V characteristic of uni-junction  5	0-3	Answer the following questions	
B Explain single phase parallel inverter.  OR  A Explain Type E chopper with appropriate wave form.  Explain basic structure, equivalent circuit and I-V characteristic of uni-junction  5		Enlist and explain different control strategies of Chopper.	5
OR A Explain Type E chopper with appropriate wave form. 5 B Explain basic structure, equivalent circuit and I-V characteristic of uni-junction 5			5
B Explain basic structure, equivalent circuit and I-V characteristic of uni-junction 5			
B Explain basic structure, equivalent circuit and I-V characteristic of uni-junction 5	A	Explain Type E chopper with appropriate wave form.	5
		Explain basic structure, equivalent circuit and I-V characteristic of uni-junction	5

# Section - II

Q-4	The state of the s	
A	Draw and explain Transfer, Output and Switching characteristics of power MOSFET in detail.	5
В	Explain single phase half wave AC voltage controller with resistive load.	5
C	Explain integral cycle (On - Off) controller.	5
	OR	
C	Explain constructional details of Thyristor. Also explain its static I-V characteristic.	5
Q-5	Answer the following questions	
A	Explain basic series inverters with waveforms.	5
В	Explain Three phase Voltage Source Inverter with 180 degree mode of conduction.	5
	OR	
A	Explain single phase full wave AC controller with RL load.	5
В	A single phase half wave AC voltage controller feeds a load of R=20 ohm with an input voltage 230V 50Hz AC supply firing angle is 45° Determine, RMS value of output voltage and power delivered to the load	5
Q-6	Answer the following questions	
A	Explain three phase full converter in rectifier mode with RLE load.	5
В	Explain voltage control in single phase inverter.	5
	OR	
A	What is cycloconverter? Enumerate some of its industrial applications.	5
В	Explain working principle and enlist different type of choppers.	5

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#### KADI SARVA VISHVAVIDYALAYA

#### **B.E. SEMESTER V EXAMINATION (November 2015)**

**SUBJECT CODE: EE-504** 

**SUBJECT NAME: Power Electronics** 

DATE: 26/11/2015

TIME: 10:30 to 1:30

**TOTAL MARKS: 70** 

#### Instructions:

- 1. Answer each section in separate answer sheets
- 2. Use of scientific Calculator is permitted
- 3. All questions are compulsory
- 4. Indicate clearly the options you attempted along with the respective question number.
- 5. Use the last page of your supplementary for rough work

#### Section - I

Q-1	Answer the following questions	
A	Explain basic structure and equivalent characteristic of MOSFET.	5
В	Explain type A chopper with appropriate wave form	5
C	Explain single phase full bridge rectifier with R-L Load.	5
	OR	
C	Explain voltage source inverter in detail.	5
Q-2	Answer the following questions	
A	Explain single phase half control bridge rectifier with RL load and explain the purpose of freewheeling diode.	5
В	Explain dual converter with appropriate waveform.	5
	OR	
A	Explain three phase to single phase cycloconverter.	5
В	Explain single phase half bridge inverter with waveforms.	5
Q-3	Answer the following questions	
A	Enlist and explain different control strategies of Chopper.	5
В	Explain single phase parallel inverter.	5
	OR	
A	Explain Type E chopper with appropriate wave form.	5
B	Explain basic structure, equivalent circuit and I-V characteristic of uni-junction	5
	transistor	

# Section – II

Q-4	Answer the following questions	
A B C	Draw and explain Transfer and Output characteristics of power IGBT in detail. Explain single phase Bi-directional AC voltage controller with resistive load. Explain integral cycle control for 1-phase AC voltage controller.	5 5 5
	OR	
С	Explain constructional details of Thyristor. Also explain its static V-I characteristic.	5
Q-5	Answer the following questions	
A	Explain Matrix converter with appropriate switching.	5
В	Explain Three phase Voltage Source Inverter with 120 degree mode of conduction.	5
	OR	
A B	Explain single phase Half wave AC controller with RL load.  A single phase half wave AC voltage controller feeds a load of R=30 ohm with an input voltage 230V 50Hz AC supply firing angle is 60° Determine, RMS value of output voltage and power delivered to the load	5 5
Q-6	Answer the following questions	
A	Explain three phase full converter in rectifier mode with RLE load.	5
В	Explain RC firing schemes for thyristor triggering.  OR	5
A B	What is cycloconverter? Enumerate some of its industrial applications. Explain dv/dt and di/dt protection for SCR	5

\*\*\*\*\*\*\*\*\*\*ALL THE BEST\*\*\*\*\*\*