GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

ROLL NO.	

PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Max Marks: 40 | Max Time: 120 Mins | Weightage: 40 %

ENDTERM FINAL EXAMINATION

I Semester AY 2017-18 | Course: **EEE 214 POWER ELECTRONICS** | 21 DEC 2017

Instructions:

i. Write legibly
ii. Scientific and non-programmable calculators are permitted

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Part A

[4Q x 4 M= 16Marks]

1. What are the advantages and disadvantages of on – off control of AC voltage controller?
2. Explain Sinusoidal Pulse Width Modulation?
3. How are DC choppers classified, with reference to load voltage and load current?
4. Draw the characteristic of UJT and mark all the three Different regions.

Part B

[2Q x 7 M= 14Marks]

5. a. Explain the working of a step down chopper with relevant equations
b. In a step down chopper, the source voltage is 220V DC. The load circuit parameters are R=10Ω and L=5mH. If the chopper is operating at a frequency of 200Hz and the ON/OFF ratio of the chopper is 2:1, Calculate, i) The average load current ii.) The maximum and the minimum values if instantaneous load current under steady state conditions

6. a. What are the advantages and disadvantages of Phase angle control?
b. A single phase full wave AC voltage controller supplies a resistive load of r=10Ω from an input voltage Vs=200v, 60 Hz. The delay angles of the thyristors are equal, $\alpha_1=\alpha_2=\frac{\Pi}{2}$. Determine i.) The rms output voltage ii.)The input power factor iii.) Average current of thyristors iv). RMS current of thyristors

Part C

[1Q x 10M= 10 Marks]

7. Explain the operation of a single phase bidirectional controller with resistive load. Obtain the equation for rms and average output voltage with waveforms.

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Max Marks: 20 | Max Time: 60 Mins | Weightage: 20 %

TEST 2

I Semester AY 2017-2018 | ***Course:*** **Power Electronics** **Code: EEE 214** | 25 OCT 2017

Instructions:

i. Write legibly
ii. Scientific and non programmable calculators are permitted

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Part A

(1Q x 9 M= 9 Marks)

1) Why Isolation of gate and base drive is required. explain pulse transformer circuit and Opto coupler circuit for isolation of gate drive circuit

Part B

(1Q x 6M= 06 Marks)

2) Sketch the static V-I characteristic of an SCR and explain
a) Latching current b) Holding current c) Break over voltage.

Part C (1Q x5 M= 05Marks)

3) Mention the different turn on methods employed to switch on the SCR and, explain with wave form the Resistance triggering circuits to turn on in the phase control circuits.

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Max Marks: 20 | Max Time: 60 Mins | Weightage: 20 %

TEST 1

I Semester 2017-18 | **Course: EEE 214 Power Electronics** | 20 Sep 2017

Instructions:

i. Write legibly
ii. Scientific and non programmable calculators are permitted

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Part A

(1Q x 10 M=10 Marks)

1) Draw the input and output characteristics of the following devices
a) BJT. b) MOSFET. c) IGBT. d) SCR. f) GTO.

Part B

(1Q x 4M= 04 Marks)

2) Give the definition of PE. Explain the relationship of PE to power, Electronics and Control. Mention any two applications of PE.

Part C

(1Q x6 M= 06Marks)

3) A Power BJT is connected as a switch as in figure1 with the following Data, calculate: 1) the value of RB that will result in saturation with an over drive factor of 20. 2) power loss in the Transistor'

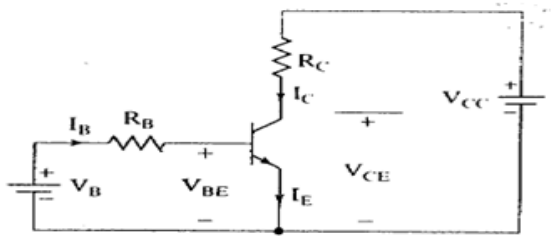

Fig.1