GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022

RM19002040

Registration No:

Total Number of Pages : 1 **M.TECH**

M.TECH 2ND SEMESTER (AR 18) REGULAR EXAMINATIONS, APRIL/MAY 2019

DIGITAL CONTROL OF POWER ELECTRONIC AND DRIVE SYSTEM

Branch: PE, Subject Code:MPEPC2020

Time: 3 Hours **Max Marks : 70**

PART-A **(10 X 2=20 MARKS)**

1. Answer the following questions.

a) Write two applications of numerical methods?
b) What are the different elements of gate/base drive circuit?.
c) What is Power Transistors in simulation?
d) Why modeling of a particular circuit required?
e) What is the application of simulation circuit?
f) Why commutation required?
g) What is Extension to AC circuits?
h) What is TRIAC?
i) Write two application of 3-phase inverter
j) What is latching current and holding current?

PART-B **(5 X 10=50 MARKS)**

Answer any five questions from the following.

Q2. a. Explain with neat sketch Modelling of diode in simulation. [5]

b. Explain the the different blocks of simulation of snubber circuits. [5]

Q3. a. Explain the Current and load commutation schemes. [5]

b.Explain the Simulation of converter fed DC motor drives. [5]

Q4. a. Explain the Simulation of single phase thyristors circuit with RL-load. [5]

b. Explain the state space analysis of linear systems [5]

Q5. a. Explain the operation of 3-phase invertor with resistive and resistive Inductive loads with the help of neat circuit diagram and current wave forms. [5]

b.Explain the Space vector representation of 6-pulse converter in rectifier mode with resistive load. [5]

Q6. a. A single phase semi converter is operated from 230V,50Hzsupply. The load current is continuous and ripple free with an average value of 10A.For a firing angle of 30^o Determine [5]

i. Average Voltage
ii. RMS Voltage
iii. Form factor
iv. Rectification Efficiency

b. Explain the Modelling of IGBT, Power Transistors in simulation. [5]

Q7. a. Explain the Simulation of single phse self commutated devices. [5]

b. Explain the State space modelling and simulation of linear systems [5]

Q8.Write short notes on:

a. Explain the different components of IGBT and Power Transistors in simulation [5]

b. Compare the characteristics of SCR, TRIAC. [5]

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