Registration No : | | | | | | | | | | |

Total Number of Pages : 01 **M.Tech**
PPPC201

2nd Semester Back Examination 2018-19
POWER CONVERTER-II
BRANCH : POWER ELECTRO AND POWER SYSTEMS
Time : 3 Hours
Max Marks : 70
Q.CODE : F169

Answer Question No.1 which is compulsory and any FIVE from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions :** **(2 x 10)**

a) What are the disadvantages of switch mode operation?
b) How the shortcomings of switch mode converter can be overcome?
c) What are the important feature of diode clamped multilevel inverter?
d) Discuss the area of application for current regulated voltage source inverter?
e) Explain briefly a controlled three phase bridge rectifier with a feedback voltage control loop.
f) Discuss the operation of boost converter with circuit details.
g) What do you mean by constant switching frequency current control methods?
h) For a load resonant dc-dc converter, what is the disadvantage of discontinuous conduction mode with $\omega_s < \frac{1}{2}\omega_0$ as compared to continuous conduction mode with $\frac{1}{2}\omega_0 < \omega_s < \omega_0$ and $\omega_s > \omega_0$?
i) What are the methods of current control?
j) How a CSI is different from VSI?

Q2 **a)** Give a comparison of single phase bridge rectifier and three phase bridge rectifier? **(5)**
b) A three phase fully controlled bridge rectifier is fed from a three phase 400 V, 50 Hz mains. For firing angle of 60^0,output current is level at 20 A and output voltage is at 230 V. Calculate the load resistance, source inductance and angle of overlap? **(5)**

Q3 **a)** Discuss the operation of diode clamped type multilevel inverter? **(5)**
b) Explain the space vector modulation strategy? **(5)**

Q4 **a)** Explain the operation of buck boost SMPS topology with relevant waveforms? **(5)**
b) Explain the operation of push-pull converter? Give an example of one of its application? **(5)**

Q5 **a)** What are the different classification of resonant converter? **(5)**
b) Explain the operation of class E converter? **(5)**

Q6 Discuss flyback converter and its operation both in continuous and discontinuous conduction mode? **(10)**

Q7 What is a series loaded resonant dc-dc converter? Explain its operation both in continuous and discontinuous mode of operation? **(10)**

Q8 **Write short answer on any TWO :** **(5 x 2)**

a) ZVS resonant switch converter
b) Variable band hysteresis controller
c) Series Inverter