

Registration No :

--	--	--	--	--	--	--	--	--	--

Total Number of Pages : 02

M.Tech.
PPPC201

2nd Semester Back Examination 2017-18
POWER CONVERTER - II
BRANCH : POWER ELECTRO AND POWER SYSTEMS
Time : 3 Hours
Max Marks : 70
Q.CODE : C755

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.
Answer all parts of a question at a place.

- Q1 Answer the following questions : (2 x 10)**
- a) What are the advantages of switched mode rectifier?
 - b) Differentiate between current source inverter and voltage source inverter.
 - c) What are the advantages of flying capacitor multilevel inverter over diode clamped multilevel inverter?
 - d) In SVM why two consecutive voltage vectors are selected for synthesizing the reference voltage vectors?
 - e) What is the advantage of two transistor flyback converter?
 - f) Differentiate between forward and buck converter.
 - g) Derive the average output voltage of a push-pull converter.
 - h) What is soft switching and why it is required?
 - i) What are the classification of resonant converters?
 - j) How the dc side voltage is controlled in a switched mode rectifier?
- Q2 a) Describe the operation of a series inverter with suitable diagram and waveforms. Which disadvantages of series inverter are overcome by modified series inverter? (5)**
- b) Explain the working of a capacitor commutated current source inverter with suitable diagram and waveforms. (5)**
- Q3 a) Draw and explain the working of a 5-level cascaded multilevel inverter with suitable diagram and waveforms. (5)**
- b) Explain, how load compensation is done by using multilevel inverters with suitable diagrams and waveforms. (5)**
- Q4 a) Explain the minimum ripple current PWM method. How it is different from Programmed/Selective harmonic elimination. (5)**
- b) What are the difference between variable band hysteresis control and fixed switching frequency current control ? (5)**
- Q5 a) Explain the working of a Flyback converter under discontinuous mode of operation with suitable diagram and waveforms. (5)**
- b) Explain the working of a Buck-Boost converter with suitable diagram and calculate the output voltage ripple. (5)**

- Q6** Draw and explain the working of a series loaded resonant dc-dc converter under discontinuous and continuous conduction mode with suitable diagram and waveforms. How parallel loaded resonant converter is different from series loaded resonant converter? **(10)**
- Q7** Describe the working of a zero current switching resonant switch dc-dc converter with suitable diagram and waveforms. Differentiate between ZCS and ZVS. **(10)**
- Q8** **Write short notes on any TWO of the following :** **(5 x 2)**
- a) Space vector modulation
 - b) Forward converter
 - c) Diode clamped multilevel inverter.
 - d) High frequency link integral half cycle converter.