

## **PX 5152 Analysis and Design of Power Converters**

### **Important 2 Marks Questions**

#### **Unit I**

1. What is the effect of source impedance in a single phase AC-DC converter?
2. What are all the advantages and disadvantages of 3 phase full converter?
3. What is the inversion mode of converter?
4. What is meant by non-circulating current mode of operation of a dual converter?
5. List techniques employed for the reduction of harmonics from the output voltage of an inverter.
6. Define commutation. How they are generally classified?
7. Why energy flows from load to source for a fraction of the period in a single phase bridge inverter with RL load?
8. State the advantages of IGBT over MOSFET?
9. What is mean by RLC under damped load?
10. Draw the waveform of single pulse-width modulation?

#### **Unit II**

1. Draw the topology of semi controlled AC-DC converter.
2. Mention the applications of isolated converter.
3. What is overlap? Why does it occur in the converter?
4. What is meant by operational freewheeling? When do you employ this?
5. What is the effect of source impedance on the performance of converters?
6. What are the methods used to control the output voltage in a three-phase inverter?
7. Draw the basic diagram of three phase bridge inverter?
8. Draw the sinusoidal pulse-width modulation for three phase inverter?
9. What is harmonic conduction by single-pulse width modulation?
10. What are the advantages and disadvantages of multi pulse width modulation?

#### **Unit III**

1. Write the logic behind time ratio control of DC-DC converter.
2. A single quadrant chopper operating on third quadrant is supplied with from a load voltage waveform consists or square pulses of duration of 5 ms and overall chopping time period of 2 s. Calculate the voltage ripple factor.
3. What are the various control strategies of chopper?
4. An ideal single quadrant chopper operating in first quadrant is supplied with power from a load voltage wave from consists of rectangle pulses of duration of 1 ms and over all chopping time period of three 3 msec. calculate the voltage ripple factor.
5. Draw the diagram of single phase CSI.
6. Define current source inverter.
7. What are the advantages and disadvantages of ACSI?
8. Draw waveform of voltage and current single phase capacitor commutated CSI?
9. What is mean by induction motor voltage waveforms?
10. What is mean by feedback diode?

#### **Unit IV**

1. What is meant by hard switching?
2. Classify resonant converters.
3. What are the applications of AC voltage controllers?
4. Draw the output voltage waveform of single phase AC voltage controller with RL load.
5. What is Extinction angle?
6. What is a 'TRIAC'? Sketch its static characteristics.
7. Write the static characteristics of TRIAC.
8. Mention the application of AC voltage controller.

#### **Unit V**

1. Define matrix converter and mention its application.
2. Write the design parameters of 3 phase dual converter.
3. What is forced commutation cycloconverter?
4. Define modulation index of PWM. What is its use?
5. Define discontinuous load current, with reference to Cyclo-converters.
6. List the applications of cycloconverters.
7. Draw the structure of matrix converter.
8. What are the advantages of soft switching over hard switching?