

QUESTION BANK (K Scheme)

Name of subject: Fundamentals of Power Electronics

Course Title: FPE (313335)

Semester: 3K

Unit Test: II

Program Code: EE

CHAPTER 3: Controlled Converters (22 marks) (CO3)

2 marks

(Partial) Cont....UT1

- 1) Compare 1θ And 3θ Converters. (4 Points).
- 2) Define Invertors.
- 3) Explain i) Voltage Source Inverter (VSI) ii) Current Source Inverter (CSI).
- 4) Name different types of PWM Techniques (Pulse Width Modulation).
- 5) Give different Applications of Inverters.

4 marks

- 6) Draw and explain the single phase half wave bridge inverter with RL load
- 7) Draw and explain the single phase Full wave bridge inverter with Resistive load (R).
- 8) Explain with waveform working principle of Pulse Width Modulation.

CHAPTER 4: DC-DC Converters (10 marks) (CO4)

2 marks

- 1) Define a Chopper.
- 2) Explain the terms related to Chopper
 - i) Turn on Period (T_{on})
 - ii) Turn off Period (T_{off})
 - iii) Duty Ratio or Duty Cycle (D)
 - iv) Chopping Period
- 3) Comparison between different control strategies of a chopper PWM (constant F Control) and Variable frequency Control (4 Points).
- 4) Comparison between Step up And Step down Choppers (4 Points).
- 5) Give different Applications of Choppers (4 Points).
- 6) State different Features of Choppers (4 Points).

4 marks

- 7) Explain the working principle of chopper with block diagram.
- 8) Explain control strategies of a chopper Pulse Width Modulation PWM- (constant F Control) along with Output waveform.
- 9) Explain control strategies of a chopper Variable frequency Control along with Output waveform.
- 10) Draw the circuit diagram; and explain the working principle of Step up Chopper along with Output waveform.
- 11) Draw the circuit diagram; and explain the working principle of Step down Chopper along with Output waveform.
- 12) Explain the working principle of Buck-Boost chopper with circuit diagram and waveforms.

CHAPTER 5: Applications of Power Electronics (08 marks) (CO5)

2 marks

- 1) Define a Photovoltaic (PV) cell.
- 2) Give different types of Solar Charge controllers.
- 3) Define Solar Charge Controller.
- 4) Give the different advantages of TRIAC Fan regulator
- 5) Explain Photovoltaic (PV) Panel
- 6) What is a Wind Energy (Wind Power) and Wind Turbine

4 marks

- 7) Draw and explain the solar photovoltaic Array with diagram.
- 8) Explain the concept or Function of a charge controller.
- 9) Draw and explain the Block diagram of Solar system with solar Charge controller system.
- 10) Draw and explain the Block diagram of Solar Power system (Photovoltaic (PV)) System.
- 11) Explain the working principle of Speed control of ceiling fan Using TRIAC block diagram.
- 12) Draw the block diagram and explain the operation of AC to AC Converter with a DC link.
- 13) Draw the block diagram and explain the operation of a wind power System.
- 14) Draw the block diagram and explain the operation of a HVDC System.
- 15) Draw the block diagram and explain the operation of a HVDC Converter System.