



SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR
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QUESTION BANK

Subject: POWER ELECTRONIC CONVERTERS(18EE2112)

Course & Branch: M.Tech -PE

Year & Sem: I-M.Tech & II-Sem

Regulation: R18

UNIT –I

THYRISTORS

1. Explain briefly about Silicon controlled Rectifiers? [12M]
2. What are the turn-off and turn-on characteristics of SCR? [12M]
3. What are the output and transfer characteristics of IGBTs [12M]
4. (a)What is a bipolar transistor and what is the difference between SCR and BJT ? [6M]
(b)Explain about steady state characteristics of BJT with neat sketch. [6M]
5. Explain briefly about MOSFET and Draw the switching characteristics of MOSFET [12M]
6. What are the purpose of shunt snubber and series snubber in transistor [12M]
7. What are the components of load torques? [12M]
8. (a)What are the turn-off and turn-on characteristics of MOSFET? [6M]
(b) What is the switching model of n-channel MOSFET? [6M]
9. What is meant by commutation? Draw the line commutation and forced commutation circuits for Thyristors. [12M]
10. Explain the basic theory of operation of SCR? [12M]

UNIT –II

SINGLE-PHASE & THREE-PHASE AC TO DC CONVERTERS

1. Explain about single phase full converter with RL load. [12M]
2. Explain about three-phase dual converter. [12M]
3. (a) What is the pulse-width-modulation control of converters? [6M]
(b) What are the extinction angle controls of converters? [6M]
4. Explain the principle of operation of phase-controlled converter. [12M]
5. Explain the principle of operation of three-phase half-wave converters. [12M]
6. How does a 12 pulse converter works? and draw the circuit . [12M]
7. State and explain different methods of control of converters. [12M]

8. Draw the circuit arrangements of single-phase semi-converters and derive the output voltage of semi-converter. [12M]
9. What is a three-phase semi-converter and draw the waveforms of three-phase semi-converter at 90° . [12M]
10. What are the reactive power considerations of ac-dc converters? [12M]

UNIT –III

DC-DC CONVERTERS

- 1) Explain the principle of step-down converter with RL-load? [12M]
- 2) Explain the principle and operation of the step-up converter with RL-load? [12M]
- 3) Explain the classification of converters? [12M]
- 4) Explain the principle and operation of the step-up converter? [12M]
5. (a) What is a dc-dc converter? [6M]
(b) What is the principle of operation of step up and step down converters. [6M]
6. Explain the principle and operation of Buck converter. [12M]
7. Explain the principle and operation of the Boost converter. [12M]
8. Explain the principle and operation of the Buck-Boost converter. [12M]
9. Explain the principle and operation of the cuk converter. [12M]
10. Explain three phase controlled converters with neat sketch? [12M]

UNIT –IV

SINGLE-PHASE INVERTERS

1. Explain the principle of the Three-Phase bridge Inverter. [12M]
2. (a) What are the types of inverters? [6M]
(b) What are the difference between half-bridge and full-bridge inverters? [6M]
3. Explain the principle and operation of the Voltage source inverters? [12M]
4. Draw the waveforms for three-phase current source inverter? [12M]
5. Explain the principle and operation of the current source inverters? [12M]

6. Draw the waveforms for three-phase inverter when each transistor conducts for 120° ? [12M]
7. What are the techniques for harmonic reductions in inverters? [12M]
8. Evaluate the voltage control of Three-Phase inverters? [12M]
9. Explain briefly about difference between space vector modulation and PWM technique? [12M]
10. Compare the modulation techniques used in inverters [12M]

UNIT –V

THREE-PHASE INVERTERS

1. Explain the principle of the Three-Phase Inverter? [12M]
2. (a) What are the types of inverters. [6M]
(b) What are the difference between single-Phase and Three-Phase inverters? [6M]
3. Explain the principle and operation of the series inverters? [12M]
4. Explain the operation of single-phase inverter and draw the waveforms? [12M]
5. Explain the principle and operation of the parallel inverters? [12M]
6. Draw the waveforms for three-phase inverter when each transistor conducts for 180° ? [12M]
7. What are the voltage control techniques of three-phase inverters? [12M]
8. Draw the waveforms for three-phase inverter when each transistor conducts for 120° . [12M]
9. Explain briefly about difference between voltage control and PWM technique? [12M]
10. Explain the Pulse width modulation techniques used in inverters. [12M]

Prepared by T.J.DEEPTHI

