



**SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR  
(AUTONOMOUS)**

Siddharth Nagar, Narayanavanam Road – 517583

**QUESTION BANK (DESCRIPTIVE)**

**Subject with Code : SWITCHED MODE AND RESONANT CONVERTERS (18EE2114)**

**Course & Branch: M.Tech - PE**

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

**Regulation: R18**

**UNIT-I**

1. Explain the buck switching regulator? [12M]
2. Explain the boost switching regulator? [12M]
3. Explain the modes of operation in buck switching regulator? [12M]
4. Explain the modes of operation in boost switching regulator? [12M]
5. Write about Design of the buck switching regulator? [12M]
6. Explain push-pull and forward converter topologies? [12M]
7. Explain push-pull converter basic operation with necessary waveforms? [12M]
8. Explain push pull converter flux imbalance? [12M]
9. Explain forward converter flux imbalance? [12M]
10. Explain about forward converter basic operation with necessary waveforms? [12M]

**UNIT-II**

1. Explain power transformer design relationships in SMPS? [12M]
2. Explain half-bridge converter topology? [12M]
3. Explain full-bridge converter topology? [12M]
4. Explain half-bridge magnetics? [12M]
5. Explain full-bridge magnetics? [12M]
6. Explain flux-imbalance problem in bridge transformer? [12M]
7. Compare current-mode and voltage-mode control circuits? [12M]
8. Detailed explanation of current-mode advantages? [12M]
9. Explain about current-mode control in SMPS? [12M]
10. Explain about voltage mode control in SMPS? [12M]

**UNIT-III**

1. Explain briefly about resonant converters? [12M]
2. Explain zero voltage switching clamped voltage topologies? [12M]
3. Explain resonant dc link inverters with zero voltage switching? [12M]
4. Explain High frequency link integral half cycle converter? [12M]
5. Explain fly back converter- mode operation? [12M]
6. Discuss about Fly back converter discontinuous mode of operation? [12M]
7. Explain transformer core materials and geometries and peak flux density selection? [12M]
8. Compare the properties of voltage-fed and current-fed topologies? [12M]
9. Explain about current-fed topologies? [12M]
10. Explain about voltage-fed topologies? [12M]

**UNIT-IV**

1. Explain in detail basic voltage PWM controller? [12M]
2. Explain current mode control for push-pull converter? [12M]
3. Explain the advantages of current mode control? [12M]
4. Compare current mode and voltage mode control methods? [12M]
5. What are the deficiencies and limitations of current mode control? [12M]
6. Explain Slope Compensation to Correct Problems in Current Mode control method? [12M]
7. Describe typical Current Mode PWM Control? [12M]
8. Explain briefly about the two commonly used control method for power supplies? [12M]
9. Discuss the different types of Slope Compensation to Correct Problems in Current Mode control method? [12M]
10. Explain voltage mode control for fly back converter? [12M]

**UNIT-V**

1. Explain about Voltage Mode SMPS Transfer Function? [12M]
2. Describe about resonant pulse ac power supplies? [12M]
3. Explain about bidirectional dc power supplies? [12M]
4. Explain briefly about Techniques to reduce Emissions in SMPS? [12M]
5. Discuss about Power Circuit Layout for minimum EMI in SMPS? [12M]
6. Write a brief note on Effect of EMI Filter on SMPS Control? [12M]
7. Explain about Radiated Emission Mechanisms in SMPS? [12M]

8. Write a short note on Shielding and Grounding to reduce EMI in SMPS? [12M]
9. Explain how EMI is Generated and Filtered in SMPS? [12M]
10. Explain about bidirectional ac power supplies? [12M]

Prepared by:

J. YUGANDHAR  
ASSOCIATE PROFESSOR  
DEPT. OF EEE  
SIETK