



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, Mech., ECE & CSE)

Accredited by NAAC with 'A' Grade)

Puttur -517583, Tirupati District, A.P. (India)

QUESTION BANK (DESCRIPTIVE)

Subject with Code: SWITCHED MODE AND RESONANT CONVERTERS (20EE2114)

Course & Branch: M.Tech - PE

Regulation: R20

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

UNIT –I

1	Describe the Buck switching regulator?	[L2][CO1]	[12M]
2	Describe the Boost switching regulator?	[L2][CO1]	[12M]
3	Explain the modes of operation in buck switching regulator?	[L2][CO1]	[12M]
4.	Explain the modes of operation in boost switching regulator?	[L2][CO1]	[12M]
5.	Discuss about the Design of the buck switching regulator?	[L2][CO1]	[12M]
6	Describe push-pull and forward converter topologies?	[L2][CO1]	[12M]
7	Explain push-pull converter basic operation with necessary waveforms?	[L2][CO1]	[12M]
8	Describe the push pull converter flux imbalance?	[L2][CO1]	[12M]
9	Describe the forward converter flux imbalance?	[L2][CO1]	[12M]
10	Explain about forward converter basic operation with necessary waveforms?	[L2][CO1]	[12M]

UNIT –II

1	Describe the power transformer design relationships in SMPS?	[L2][CO2]	[12M]
2	Describe the half-bridge converter topology?	[L2][CO2]	[12M]
3	Describe the Full-bridge converter topology?	[L2][CO2]	[12M]
4	Explain the half-bridge magnetics?	[L2][CO2]	[12M]
5	Explain the Full-bridge magnetics?	[L2][CO2]	[12M]
6	Explain the flux-imbalance problem in bridge transformer?	[L2][CO2]	[12M]
7	Compare current-mode and voltage-mode control circuits?	[L4][CO2]	[12M]
8	Summarize the concept of current-mode advantages?	[L4][CO2]	[12M]
9	Illustrate about current-mode control in SMPS?	[L4][CO2]	[12M]
10	Illustrate about voltage mode control in SMPS?	[L4][CO2]	[12M]

UNIT –III

1	Describe briefly about resonant converters?	[L2][CO3]	[12M]
2	Describe the zero voltage switching clamped voltage topologies?	[L2][CO3]	[12M]
3	Explain resonant dc link inverters with zero voltage switching?	[L2][CO3]	[12M]
4	Illustrate the High frequency link integral half cycle converter?	[L4][CO3]	[12M]
5	Describe the fly back converter- mode of operation?	[L2][CO3]	[12M]
6	Discuss about Fly back converter discontinuous mode of operation?	[L2][CO3]	[12M]
7	Explain transformer core materials and geometries and peak flux density selection	[L2][CO3]	[12M]
8	Compare the properties of voltage-fed and current-fed topologies?	[L4][CO3]	[12M]
9	Explain about current-fed topologies?	[L2][CO3]	[12M]
10	Explain about Voltage-fed topologies?	[L2][CO3]	[12M]

UNIT –IV

1	Describe in detail on basic voltage PWM Controller.	[L2][CO4]	[12M]
2	Explain current mode control for push-pull converter?	[L2][CO4]	[12M]
3	Summarize the advantages of current mode control?	[L4][CO4]	[12M]
4	Compare current mode and voltage mode control methods?	[L4][CO4]	[12M]
5	Illustrate the deficiencies and limitations of current mode control?	[L2][CO4]	[12M]
6	Explain Slope Compensation to Correct Problems in Current Mode control method?	[L2][CO4]	[12M]
7	Describe typical Current Mode PWM Control?	[L2][CO4]	[12M]
8	Explain briefly about the two commonly used control method for power supplies?	[L2][CO4]	[12M]
9	Discuss the different types of Slope Compensation to Correct Problems in Current Mode control method?	[L2][CO4]	[12M]
10	Explain voltage mode control for fly back converter?	[L2][CO4]	[12M]

UNIT -V

1	Discuss about the Voltage Mode SMPS Transfer Function?	[L2][CO5]	[12M]
2	Describe about resonant pulse ac power supplies?	[L2][CO5]	[12M]
3	Explain about bidirectional dc power supplies?	[L2][CO5]	[12M]
4	Illustrate briefly about Techniques to reduce Emissions in SMPS?	[L4][CO5]	[12M]
5	Discuss about Power Circuit Layout for minimum EMI in SMPS?	[L2][CO5]	[12M]
6	Write a brief note on Effect of EMI Filter on SMPS Control?	[L2][CO6]	[12M]
7	Explain about Radiated Emission Mechanisms in SMPS?	[L2][CO6]	[12M]
8	Write a short note on Shielding and Grounding to reduce EMI in SMPS?	[L2][CO6]	[12M]
9	Explain how EMI is Generated and Filtered in SMPS?	[L2][CO6]	[12M]
10	Explain about bidirectional ac power supplies?	[L2][CO6]	[12M]

**Prepared by:
Dr. J.Gowrishankar
Professor/EEE**