

Program: BE Electrical Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year Semester VII

Course Code: EEE702

Course Name: Analysis & Design of Power Switching Converters (ADPSC)

Time: 1 hour

Max. Marks: 50

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Note to the students: - All the Questions are compulsory and carry equal marks.

Q1.	In a power switching converters, high frequency operation is desirable
Option A:	Reducing the switching losses
Option B:	Minimizing the size and weight of the circuit
Option C:	Reducing the conduction losses
Option D:	Minimize the EMI issues
Q2.	In a boost converter, if input voltage is 10 V and the converter is operated at a duty cycle of 0.5 %. Find the output voltage.
Option A:	50V
Option B:	84V
Option C:	25V
Option D:	20V
Q3.	In power converters, MOSFETS are suitable for operational voltage range of
Option A:	1000-1500V
Option B:	800-1000V
Option C:	300-400V
Option D:	1500-2000V
Q4.	Inductor core size is for higher switching frequency.
Option A:	same
Option B:	higher
Option C:	lesser
Option D:	has no relation
Q5.	Three phase full bridge inverter uses semiconductor devices
Option A:	12
Option B:	3
Option C:	6
Option D:	4

Q6.	Magnitude of the output voltage of an inverterif the modulation index (ma) decreases,
Option A:	Remains same
Option B:	increases
Option C:	decreases
Option D:	has no relation
Q7.	Liquid cooling of power devices is essential in
Option A:	Low frequency, Low power application
Option B:	High power Applications
Option C:	Very High frequency, low power applications
Option D:	All the power converters
Q8.	Snubber capacitors are places directly on DC link busbar in close proximity of power devices
Option A:	To avoid wiring
Option B:	To minimize the EMI
Option C:	Ensure least inductance in snubber circuit
Option D:	To reduce the snubber capacitance value
Q9. converter has a third demagnetizing winding needed to reset the core.
Option A:	Forward
Option B:	Flyback
Option C:	Basic Buck
Option D:	Basic Boost
Q10.	Inductor and Capacitor in DC to DC converters are used as.....
Option A:	Increase the cost
Option B:	Decrease the cost
Option C:	Energy storage element and effectively act as filter for switching component
Option D:	Filter out the fundamental harmonics
Q11.	In a buck converter if applied input voltage is 12 volts and output voltage is 4 volts, the duty cycle of switch is
Option A:	0.33
Option B:	0.8
Option C:	0.5
Option D:	3.00
Q12.	CLC filter & Common mode choke used at the input of the converter is used for addressing issues of
Option A:	Radiated EMI
Option B:	Conducted EMI and EMC
Option C:	Conducted EMI only
Option D:	Protection

Q13.	Among the following is not a direct application of DC to DC converter.
Option A:	Power factor Correction
Option B:	Speed control of dc motor
Option C:	Fixed DC to variable AC conversion
Option D:	Fixed DC to variable DC conversion
Q14.	One of the following is not the role of gate driver circuit of a power converter
Option A:	Provide the power to the converter
Option B:	Provide appropriate gate current and voltage to power switches
Option C:	Protect the switch against shoot through conditions
Option D:	Prevent mal-operation of gate in transient conditions
Q15.	Feed Forward control is employed in power converter to:
Option A:	Reducing the control complexity
Option B:	Increase the time constant of the plant
Option C:	Improve the accuracy of the control
Option D:	Improve the dynamical response of the power converter
Q16.	Three leg inverter with MOSFETs is in general
Option A:	Bi-directional converter
Option B:	Uni-directional buck converter
Option C:	Uni-directional boost converter
Option D:	Buck-boost converter
Q17.	Which is not true in case of Ferrite core?
Option A:	Brittle
Option B:	Easy availability
Option C:	Low cost
Option D:	Cannot be used for very high switching frequency
Q18.	A flyback DC-DC converter is
Option A:	Buck converter
Option B:	Isolated buck-boost converter
Option C:	Boost converter
Option D:	Non isolated buck-boost converter
Q19.	In a dc-dc converter with current control, the current which is sensed and controlled is
Option A:	Inductor current
Option B:	Capacitor current
Option C:	Switch current
Option D:	Diode current
Q20.	A three phase Solar PV grid tied system typically includes
Option A:	DC-DC converter and DC-AC converter
Option B:	DC to DC converter

Option C:	DC to AC converter
Option D:	AC to DC converter
Q21.	In naturally cooled heatsink, the thermal conductivity depends upon
Option A:	Material, shape, fins and weight of the heatsink
Option B:	Shape and fins of heatsink
Option C:	Weight of the heatsink only
Option D:	Type of material only
Q22.	Practically used Gate Driver should provide
Option A:	amplification
Option B:	isolation
Option C:	Current amplification, isolation and protection
Option D:	Neither amplification nor isolation
Q23.	The switching frequency selection for a DC-DC converter is mainly based on
Option A:	Ambient temperature consideration
Option B:	Power rating of the converter
Option C:	Voltage rating of the converter
Option D:	Current rating of the converter
Q24. Is preferred for induction heating with very high frequency.
Option A:	Zero-Voltage-switching (ZVS)
Option B:	Zero-frequency-switching (ZFS)
Option C:	Zero-phase-switching (ZPS)
Option D:	Zero-Current-switching (ZCS)
Q25.	Space vector modulation as compared to spwm do not offer
Option A:	Better utilization of the DC link voltage
Option B:	Better frequency spectra
Option C:	Easy implementation and control
Option D:	Lesser EMI

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Question	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	B
Q2.	D
Q3.	C
Q4	B
Q5	C
Q6	C
Q7	B
Q8.	C
Q9.	A
Q10.	C
Q11.	A
Q12.	B
Q13.	C
Q14.	A
Q15.	D

Q16.	A
Q17.	D
Q18.	B
Q19.	A
Q20.	A
Q21.	A
Q22.	C
Q23.	B
Q24.	A
Q25.	C