

Unit 7 - Week 6

Course outline

How does an NPTEL online course work?

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

● Modular Multilevel Converter - Arm Energy Balancing

● Modular Multilevel Converter - Different Circuit Topologies

● Modular Multilevel Converter - PWM Technique and Capacitor Voltage Balancing

● Lecture Slides Week 6

○ Quiz : Assignment 6

○ Week 6 Feedback Form

Week 7

Week 8

week 9

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Week 12

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Assignment Solutions

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Assignment 6

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-03-11, 23:59 IST.

1) The second harmonic component present in the arm current of MMC ensures

1 point

- energy balance between upper and lower arm
- energy balance among phases
- energy balance between AC and DC side
- not to cause any energy exchange

No, the answer is incorrect.

Score: 0

Accepted Answers:

energy balance among phases

2) The fundamental component present in the arm current of MMC ensures

1 point

- energy balance between upper and lower arm
- energy balance among phases
- energy balance between AC and DC side
- not to cause any energy exchange

No, the answer is incorrect.

Score: 0

Accepted Answers:

energy balance between upper and lower arm

3) Consider an ideal MMC working as a DC-AC inverter. The modulation index of the reference am voltage is 0.95 and power factor is 0.9. If the peak amplitude of AC current in the AC side is 100 A, what is the magnitude of DC current flowing the DC bus side?

2 points

- 64 A
- 100 A
- 94 A
- 74 A

No, the answer is incorrect.

Score: 0

Accepted Answers:

64 A

4) Which of the following sequence of events happen during fault and bypass operation of MMC ?

1 point

- Triac is fired; after that IGBTs are blocked; after that mechanical contactor is closed
- IGBTs are blocked; after that Triac is fired; after that mechanical contactor is closed
- IGBTs are blocked; after that mechanical contactor is closed; after that Triac is fired
- Mechanical contactor is closed; after that Triac is fired; after that IGBTs are blocked

No, the answer is incorrect.

Score: 0

Accepted Answers:

IGBTs are blocked; after that Triac is fired; after that mechanical contactor is closed

5) If there are 300 number of cells in each arm of MMC made with half bridge cells and sinusoidal level shifted PWM technique is implemented to modulate the arm voltages, then maximum number levels possible in the arm voltage is

1 point

- 300
- 301
- 400
- 600

No, the answer is incorrect.

Score: 0

Accepted Answers:

301

6) In an MMC, phase shifted PWM technique is implemented to modulate the arm voltages and there are 100 number of cells present in each arm. What is the phase shift given between the carriers?

2 points

- 2°
- 1.5°
- 180°
- 1.8°

No, the answer is incorrect.

Score: 0

Accepted Answers:

1.8°

7) Sorting algorithm in MMC is used to

1 point

- Balance cell capacitor voltages
- Deliver Maximum power to the load
- Increase in modulation index
- Bypass the faulty modules

No, the answer is incorrect.

Score: 0

Accepted Answers:

Balance cell capacitor voltages

8) Which of the following is correct?

1 point

- In level shifted PWM only conduction losses are equal
- In level shifted PWM only switching losses are equal
- In level shifted PWM both conduction and switching losses are equal
- In level shifted PWM both conduction and switching losses are unequal

No, the answer is incorrect.

Score: 0

Accepted Answers:

In level shifted PWM both conduction and switching losses are unequal