

Unit 13 - Week 12

Course outline

How does an NPTEL online course work?

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Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

Condition Monitoring of Converters

Other Converter Topologies

Summary of the Course

Lecture Slides Week 12

Quiz : Assignment 12

Week 12 Feedback Form

Download Videos

Assignment Solutions

Text Transcripts

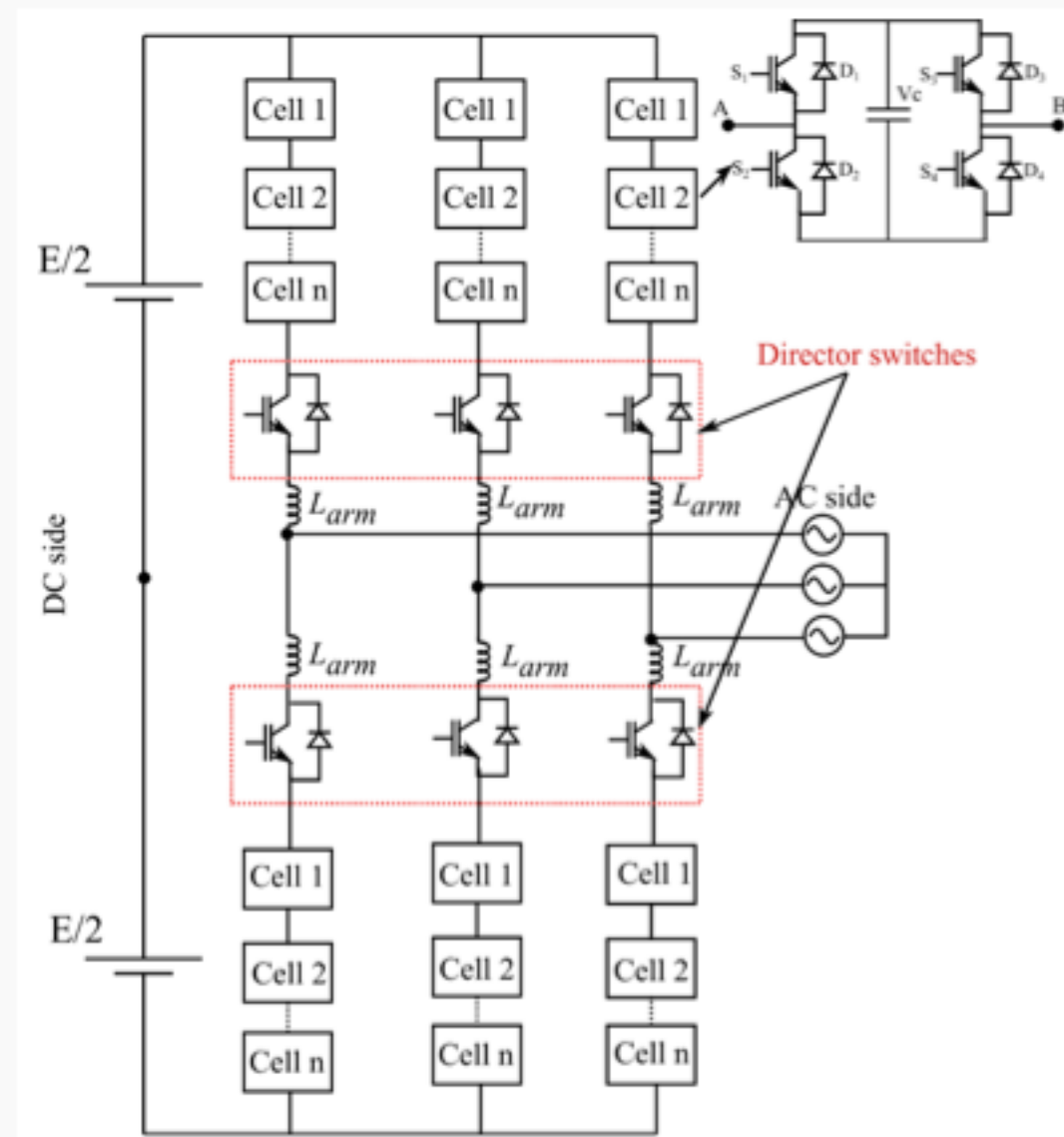
Assignment 12

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

Due on 2020-04-22, 23:59 IST.

Linked Question (From 1 to 3)

An Alternate Arm Converter (AAC) is shown below. It has 100 number of full bridge power cells in each arm and feeds a 50 Hz grid. The DC bus voltage (E) is 640 kV, power output of the converter is 500 MW, power factor is 0.9 and modulation index of each arm voltage is 0.9 when sinusoidal PWM is used. There is a short overlap period. Assume the converter is ideal and there is negligible drop across the arm inductors. Assume safety factor =1.



1) What is the voltage rating of each cell? 2 points

4.2kV
 6.4kV
 3.2kV
 1kV

No, the answer is incorrect. Score: 0

Accepted Answers: 3.2kV

2) What is the maximum number of levels possible in each arm voltage? 2 points

100
 201
 101
 301

No, the answer is incorrect. Score: 0

Accepted Answers: 201

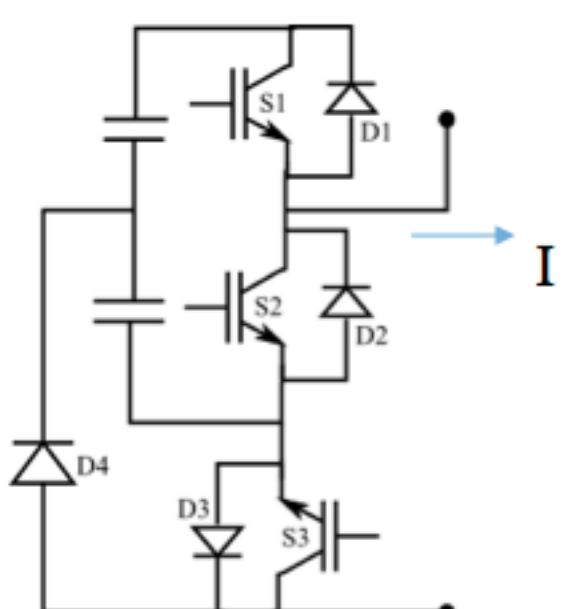
3) The voltage rating of the director switches is closest to 2 points

640kV
 576kV
 100 kV
 320kV

No, the answer is incorrect. Score: 0

Accepted Answers: 320kV

4) An MMC is made with the sub-module circuit shown below. Given the current direction, which of the following diodes are conducting in the submodule after all the switches are turned OFF? 2 points



- D1,D3
- D1,D2
- D2,D4
- D3,D4

No, the answer is incorrect. Score: 0

Accepted Answers: D2,D4

5) For monitoring the health of IGBT over long time during continuous operation, which of the following is the most accurate? 1 point

Online measurement of turn on time
 Online measurement of gate current
 Online measurement of heat sink temperature
 Online measurement of on state collector emitter voltage

No, the answer is incorrect. Score: 0

Accepted Answers: Online measurement of on state collector emitter voltage

6) Over long time during continuous operation, the ESR value of a capacitor 1 point

Increases
 Decreases
 Remains same
 Cannot be said

No, the answer is incorrect. Score: 0

Accepted Answers: Increases