Unit 3 - Week 2

Assignment 2

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

Due on 2020-02-12, 23:59 IST.

1) The main purpose of adding a third harmonic component in the reference waveform is to _____. *1 point*

- Improve harmonic profile of load voltage
- Increase the DC bus voltage utilization
- Improve harmonic profile of load current
- Reduce switching frequency of the converter

No, the answer is incorrect.
Score: 0

Accepted Answers:
Increase the DC bus voltage utilization

2) A Voltage Source Converter (VSC) (shown in Fig. 1) with V_D = 600V feeds a series R-L load of value (5+j3) ohm/phase. What is the fundamental maximum rms load phase voltage possible if third harmonic component of magnitude 1/6th of fundamental,is added to the reference waveform? *2 points*

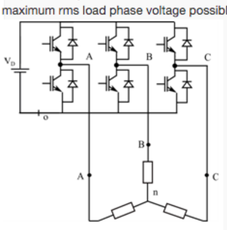

Figure 1

- 244V
- 210V
- 300V
- 600V

No, the answer is incorrect.
Score: 0

Accepted Answers:
244V

3) For the condition given in question 2, what is the three phase active and reactive powers consumed by the load? *2 points*

- 100 KW and 50 KVAR
- 20 KW and 10 KVAR
- 26.25 KW and 15.75 KVAR
- 20.23 KW and 12.45 KVAR

No, the answer is incorrect.
Score: 0

Accepted Answers:
26.25 KW and 15.75 KVAR

4) In question 2, the magnitude of third harmonic component present in the line voltage is _____V. *1 point*

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) 0

5) The magnitude and phase angle of the space vector for 011 switching combination with V_D=700 V DC bus is, *1 point*

- 700,180°
- 467,120°
- 467,180°
- 700,120°

No, the answer is incorrect.
Score: 0

Accepted Answers:
467,180°

6) To realize the reference vector (V_R)shown in Fig. 2. The correct switching sequence for realizing space vector PWM is, *1 point*

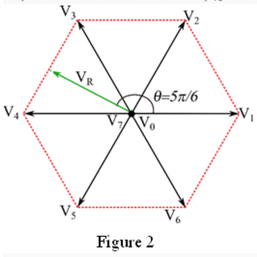

Figure 2

- 010-000-011-111-011-000-010
- 000-011-010-111-011-010-000
- 000-010-011-111-011-010-000
- 000-100-110-111-110-100-000

No, the answer is incorrect.
Score: 0

Accepted Answers:
000-010-011-111-011-010-000

7) For condition given in question 6, for realizing the reference vector V_R , the timing durations of switching vectors V_3, V_4 and zero vector are……. . respectively. (Sampling time period, T_s=200 μs, V_D=700 V and magnitude of V_R = 400 V). *2 points*

- T_1=96.7μs, T_2=96.7μs, T_o= 2.6 μs
- T_1=98.97μs, T_2=98.97μs, T_o= 2.06 μs
- T_1=99.7μs, T_2=98.7μs, T_o= 1.6 μs
- T_1=98.7μs, T_2=97.7μs, T_o= 3.6 μs

No, the answer is incorrect.
Score: 0

Accepted Answers:
T_1=98.97μs, T_2=98.97μs, T_o= 2.06 μs