Unit 9 - Week 6

Course outline

How to access the portal

Study Materials

Week 0 Assignment 0

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

- Lecture 45 : Phase Conversion using Transformer : Scott Connection
- Lecture 46 : Scott Connection (Contd.)
- Lecture 47 : 3 Phase to 6 Phase Conversion and O.C / S.C Test on 3 Phase Transformer
- Lecture 48 : Parallel Operation of Transformers - I
- Lecture 49 : Parallel Operation of Transformers - II
- Lecture 50 : Parallel Operation of Transformers - III
- Lecture 51 : Specific Magnetic and Electric Loadings
- Lecture 52 : Cooling of Transformer and Fillings of Transformer
- Lecture 53 : Output Equation of 3- Phase Transformer
- Quiz : Week 6 Assignment 6
- Board-work
- Feedback For Week 6

Week 7

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week 12

Download Videos

Detail Solution

Live Session

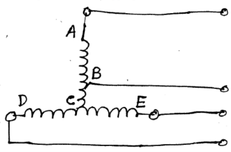
Week 6 Assignment 6

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

Due on 2019-09-11, 23:59 IST.

Common data for Question 1 to 3

A Scott-connected transformer is fed from a 2-phase, 6600-V (per phase voltage) network and supplies a 3-phase, 4-wire system at 500-V (line to line voltage). The low voltage side is shown in the figure. If there are 500 turns per phase on the 2-phase side, find the number of turns in the low voltage windings and the position of the tapping of the neutral wire.



1) $N_{DE} = ?$

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 36,40

1 point

2) $N_{AC} = ?$

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 31,35

1 point

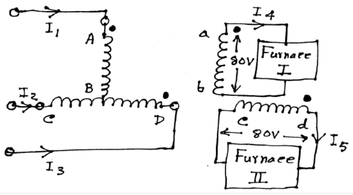
3) $N_{AB} = ?$

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 20,24

1 point

Common data for Question 4 to 9

Two single-phase furnaces I and II are supplied at 80-V by means of a Scott-connected transformer combination from a 3-phase, 6600-V (line to line) system. The voltage of furnace I is leading. The circuit diagram is shown in the figure. The two furnaces consume 500-kW and 800-kW respectively. The power factor of furnace I is unity, but the power factor of furnace II varies.



4) Find the value of I_1(in A),if power factor of furnace II is unity.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 85,90

1 point

5) Find the value of I_2(in A), if power factor of furnace II is unity.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 124,134

1 point

6) Find the value of I_3(in A), if power factor of furnace II is unity.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 124,134

1 point

7) Find the value of I_1(in A), if power factor of furnace II is 0.7.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 85,90

1 point

8) Find the value of I_2 (in A), if power factor of furnace II is 0.7.

a. 122
b. 129
c. 138
d. 145

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

1 point

9) Find the value of I_3 (in A), if power factor of furnace II is 0.7.

a. 145
b. 173
c. 207
d. 223

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.

Common data for Question 10 to 11

Two 110-V/220-V transformers with ratings 2.2-kVA and 6.6-kVA are used in parallel. The total resistance and leakage reactance of the 2.2-kVA transformer (referred to the HV side) is 0.3Ω and 1.5Ω.

10) What should be the value of the total resistance of the 6.6-kVA transformer (in Ω) referred to the HV side?

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.095,0.105

1 point

11) What should be the value of the total leakage reactance of the 6.6-kVA transformer (in Ω) referred to the HV side?

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.495,0.505

1 point

12) Two 110-V/220-V transformers with ratings 2.2-kVA and 6.6-kVA are used in parallel. The total resistance and leakage reactance of the 2.2-kVA transformer (referred to the HV side) is 0.2Ω and 1Ω.The total resistance and leakage reactance of the 6.6-kVA transformer (referred to the HV side) is 0.1Ω and 0.5Ω. What is the maximum kVA that this parallel combination can deliver without crossing the rating of any of the transformers?

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 6.55,6.65

1 point