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Courses » Computer Aided Power System Analysis

Announcements

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## Unit 12 - Week 11

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**Week 11**

● Fault Analysis (Contd..)

● Fault Analysis (Contd...)

● Fault Analysis (Contd....)

● Fault Analysis (Contd.....)

● Fault Analysis (Contd.....)

○ Quiz : Assignment 11

Week 12

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### Assignment 11

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

**Due on 2019-04-17, 23:59 IST**

1) In a 3 bus three phase power system, there are two lines, line 1-2 and line 2-3. An 'a-b' **2 points** fault takes place at bus 3 with a fault impedance of  $j0.1 \Omega$ . The admittance matrices of these two lines ( $y_{12}^{abc}$  and  $y_{23}^{abc}$ ) are given

$$\text{as; } y_{12}^{abc} = y_{23}^{abc} = j \begin{bmatrix} -34.7283 & 17.8066 & 11.0144 \\ 17.8066 & -37.4116 & 13.8487 \\ 11.0144 & 13.8487 & -31.5434 \end{bmatrix}. \text{ The } Z_{33}^{abc} \text{ matrix is given}$$

$$\text{by } Z_{33}^{abc} = \begin{bmatrix} j192.24 & 0 & 0 \\ 0 & j192.35 & 0 \\ 0 & 0 & j346.14 \end{bmatrix}. \text{ Further, the bus voltages of bus 1, 2 and 3 (in kV) are given}$$

$$\text{as; } V_1^{abc} = \begin{bmatrix} 4.16 \\ -2.08 - j3.6027 \\ -2.08 + j3.6027 \end{bmatrix}; V_2^{abc} = \begin{bmatrix} 4.1596 - j0.0006 \\ -2.0807 - j3.6027 \\ -2.0801 + j3.6026 \end{bmatrix}; V_3^{abc} = \begin{bmatrix} 4.1591 - j0.0011 \\ -2.0815 - j3.602 \\ -2.0803 + j3.602 \end{bmatrix}$$

$$\text{matrix } Z_{23}^{abc} \text{ is: } Z_{23}^{abc} = \begin{bmatrix} j192.2 & 0 & 0 \\ 0 & j192.32 & 0 \\ 0 & 0 & j346.11 \end{bmatrix}.$$

Phase-a fault current at bus 3 is

- 0.0094 + j0.0162
- 0.0094 - j0.0162
- 0.0094 + j0.0162
- 0.0094 - j0.0162

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

0.0094 - j0.0162

2) Phase-b fault current at bus 3 is

**2 points**

- 0.0094 + j0.0162
- 0.0094 - j0.0162
- 0.0094 + j0.0162
- 0.0094 - j0.0162

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

-0.0094 + j0.0162

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-0.0244 - j0.0081

No, the answer is incorrect.

Score: 0

Accepted Answers:

0.0244 - j0.0081

4) Phase-b fault current flowing through line '2-3' is

2 points

0.0144 + j0.0128

0.0144 - j0.0128

-0.0144 + j0.0128

-0.0144 - j0.0128

No, the answer is incorrect.

Score: 0

Accepted Answers:

-0.0144 - j0.0128

5) Phase-c fault current flowing through line '2-3' is

2 points

0.0073 + j0.0103

0.0073 - j0.0103

-0.0073 + j0.0103

-0.0073 - j0.0103

No, the answer is incorrect.

Score: 0

Accepted Answers:

-0.0073 + j0.0103

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