台灣科技大學一百零七學年度下學期平時考(一)

科目名稱:電路學(二) 開課系所:電子系 ET2104301 地點:國際大樓 IB308

考試時間:108 年3月28日 下午13:20 至15:10 (可使用工程計算機) (15%) Please find I in Fig. 1.

1.

026A

12

1.

|+ 12 Y

by|

**THEJimmin**

Fig. 1.

2.

(15%) Please use Norton's theorem to find V, in Fig. 2.

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sy,

Fig.2.

3.

(15%) Please determine Z, for imaximum average power transfer and the value of the

maximum average power transferred to Z. in Fig. 3.

30 22

42

12/6v

1 Obv |

340A

Fig. 3.

4.

(15%) For the circuit in Fig. 4, please find the complex power supplied by the source, and the source power factor. If *f* =60Hz, please find V.(*t*).

0.12

0*.21*

**30 kW**

**0.8 leading**

**20 K*V*A**

**0.9 lagging**

**10 kW**

0.8 **lagging**

| 480*/*0° Vrms

Fig. 4.

5.

(15%) A balanced three-phase source serves the following loads:

Load 1: 24 kVA at 0.8 pf lagging. Load 2: 10 kVA at 0.7 pf leading

Load 3: 10 kW at unity pf. Load 4: 16 kVA at 0.8 pf lagging The line voltage at the load is 208Vrms at 60 Hz , and the line impedance is 0.02 + *¡0.*0422. Please find the line voltage and the power factor at the source.

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6.

**se**

VOT

(10%) In a balanced three-phase wye-wye system, the source is an abc-sequence set of voltages and Von = 120240° Vrms. If the a-phase line current and line impedance are known to be 7.12-10.28o Arms and 0.8+ *j*122 respectively, please find the load impedance.

**w*n***

(15%) An abc-phase-sequence three-phase balanced wye-connected source supplies a balanced delta-connected load. The impedance per phase in the delta load is 12+*j*612. The linę voltage at the source is Vom = 120v3240° Vrms. If the line impedance is zero, please find the line currents in the balanced wye-delta system.