

國立臺北科技大學

九十八學年第二學期電機系博士班資格考試

電力系統品質 試題

第一頁 共二頁

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注意事項：

1. 本試題共【5】題，配分共 100 分。
2. 請按順序標明題號作答，不必抄題。
3. 全部答案均須答在試卷答案欄內，否則不予計分。
4. 考試時間：二小時。

1. (20%) Describe the meanings of the following items.
 - (1) Total harmonic distortion (THD)
 - (2) Total demand distortion (TDD)
 - (3) Displacement power factor (DPF) and true power factor (TPF)
 - (4) Ferroresonance (FR)
2. (20%) Explain the impacts of harmonic distortion on various power system components.
3. (1) (10%) Explain the reasons to cause the voltage flicker.
(2) (10%) What are the meaning of $\Delta V_{10\%}$ and flicker severity?
4. (20%) Explain the reasons to cause the long-duration voltage variation problems and the affections of the voltage variation problems.
5. (1) (10%) Explain the reasons that an end user might decide to apply power factor correction capacitors.
(2) (10%) Location of power factor correction as shown in Figure 1, what are the benefits and disadvantages realized by installing power factor correction capacitors (C1~C4)?

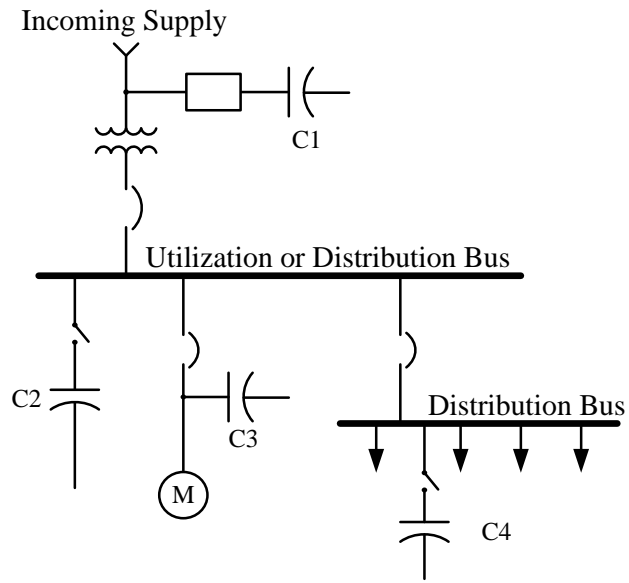


Figure 1