

# 國立臺北科技大學九十五學年度碩士班招生考試

系所組別：1610 電機工程系碩士班甲組

## 第一節 電力系統 試題

填准考證號碼

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第一頁 共一頁

### 注意事項：

1. 本試題共八題，配分共 100 分。
2. 請標明大題、子題編號作答，不必抄題。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

1. Illustrate the following terminology in brief: (30%)
  - (1) Infinite bus (3%)
  - (2) Skin effect (3%)
  - (3) Corona (3%)
  - (4) Armature reaction (3%)
  - (5) Power angle (3%)
  - (6) Power factor angle (3%)
  - (7) Symmetrical component (3%)
  - (8) Surge impedance load (3%)
  - (9) Bundled conductor (3%)
  - (10) Transient stable (3%)
2. There are many kinds of unbalanced fault in a power system, can you write three kinds of unbalanced fault as you know? (9%)
3. Write and explain how many bus types in the power flow analysis? (9%)
4. Draw the zero- and positive- sequence network for the one-line diagram as shown in Fig. 1.
  1. There are two generators, two transmission lines and four transformers in the system. Please identify points LMNOPQRSTU on your diagram. (12%)

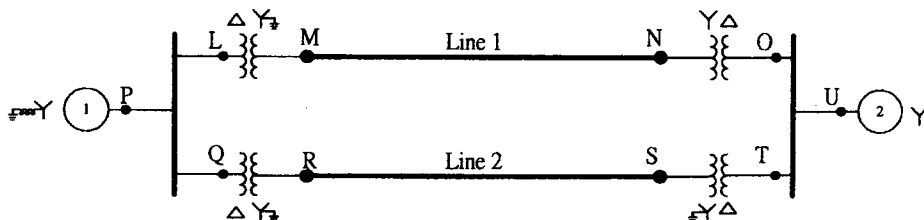


Fig. 1

5. From the three-phase sources, network construction and three-phase load, Can you interpret the conditions of a balanced three-phase system? (10%)
6. A three-phase supply system is popular in industry over a single-phase supply. Can you

interpret the reasons why? (10%)

7. What is the regulating transformer? Explain how do you apply regulating transformers to control power flow in a power network. (10%)
8. Sketch a diagram to explain the equal-area stability criterion. (10%)