

國 立 清 華 大 學 命 題 紙

95 學年度工業工程與工程管理學系 (所) \_\_\_\_\_ 丙 \_\_\_\_\_ 組碩士班入學考試

科目 人因工程 科目代碼 2202 共 / 頁第 / 頁 \*請在【答案卷卡】內作答

1. Please draw a diagram to illustrate a man-machine system, and discuss the important design considerations in a man-machine system. (10%)
2. Please discuss the important features in chair design to promote lumbar lordosis. (10%)
3. Please define the following terms: (15%)
  - (a) Lifting Index (LI)
  - (b) Electromyography (EMG)
  - (c) Borg-Rating of Perceived Exertion (RPE)
  - (d) Pronation and supination
  - (e) Normal working area
4. What are the **requirements** for research criteria and the **criterion measures** in human factors research? (15%)
5. Discuss the advantages and disadvantages of multidimension codes. You may give one example for good design and another example for bad design.(10%)
6. Propose an experimental plan on the project of “Mobile phone input/output design for visual impaired users”.(10%)
7. Please answer the following three sub-questions: (20%)
  - (1) Please draw a **figure** showing “**Major stages in the system design process**” as you understood.  
(Note: The “system” can be any system, from a mass transportation system for Hsinchu to a personal mobile phone that you use. It may be helpful if you keep a specific system that you are most familiar with in mind while answering the question. You may indicate in your answer sheet what the system is to help the grader understands your answer.)
  - (2) Describe the **human factors activities** in the **FIRST** stage of the process.
  - (3) Describe the **human factors activities** in the **LAST** stage of the process.
8. Please describe how an ergonomist can help to determine the level of illumination that should be provided for users?(10%)