國立成功大學

115學年度碩士班招生考試試題

編　號：145

系　所：創意產業設計研究所

科　目：數位媒體與互動設計

日　期：0204

節　次：第 3 節

注　意：1.不可使用計算機
2.請於答案卷(卡)作答，於試題上作答，不予計分。

考生請注意：本試題不可使用計算機。請用英文於答案卷（卡）作答。用非英文（如中文）作答將斟酌扣分。於本試題紙上作答者，不予計分。Calculators are not allowed for this exam. Please answer in English on the answer sheet (or card). Answers written in languages other than English (e.g., Chinese) may result in point deductions. Responses written directly on the test paper will not be graded.

(1) Human-Centered AI (40%)

In 2022, Ben Shneiderman published the book "Human-Centered AI", in which he proposed that intelligent systems and digital automation should be primarily designed to amplify, augment, empower, and enhance human performance. The core idea of Shneiderman's Human-Centered AI (HCAI) is that artificial intelligence should be designed to support and expand human intelligence, rather than merely substitute for it.

Please choose an existing occupation. Based on your knowledge, select two tasks from this occupation (e.g., a surgeon's tasks may include diagnosing from patient records, and performing surgery). Then, based on Shneiderman's HCAI, propose and describe two HCAI designs, each supporting one of the two tasks.

1. What is the occupation you choose to design for? (Please do NOT choose "surgeon," which is already used as an example above.) (2%)
2. List two tasks (Tasks A and B) for the occupation you have chosen. (8% total, 4% each)
3. Please use both textual and visual descriptions for your HCAI design for Task A. Your description should explain how the design is human-centered according to Shneiderman's notion. (15%)
4. As in 3., do the same for Task B. (15%)

(2) Safer Mobile Interaction for Walking (36%)

Nowadays, many people use their mobile phones even while walking on the streets. While it is certainly a dangerous thing to do, we still see an increasing frequency of such behavior. Imagine you are tasked by XYZ University to design an digital technology-based solution to enhance student road safety.

1. Using user-centered design (UCD), please describe your design process. (6%)
2. Using both textual and visual descriptions, please generate an initial design and explain who it is for. (15%)
3. Please elaborate on how you are going to conduct an evaluation for this initial design, and what you plan to do after the evaluation. (15%)

(3) Terminology (24%)

Here is a collection of important concepts in the areas of human-computer interaction (HCI), user experience (UX), and usability. These concepts are used to support, justify, and expand interaction design and media creation. They are rooted in empirical research, and bridge design, computing, and cognition.

(A) Fitts' Law	(F) Flow Theory
(B) Hick's Law	(G) Miller's Law
(C) Serial Position Effect	(H) Jakob's Law
(D) Gestalt Principles	(I) Mental Model
(E) Double Diamond Model	(J) Zeigarnik Effect

In each question below, please provide the most appropriate concept's item code (A, B, C, D, etc.) as the answer. Please note: (1) Each question below has only ONE answer, i.e., you get the whole question wrong if you provide multiple answers for a question (even if the answers contain the one right answer); (2) It is possible that a concept might be used as the answer for more than one question. (Each question is worth 3%)

1. This can explain why in Windows or Mac computers, task bars or menu bars are placed on an edge of the screen.
2. This design framework consists of 4 stages: discovering problems, defining problems, developing solutions, and delivering solution. The framework emphasizes iterative and user-centered design.
3. This suggests that decision-making time increases as the number of choices grows, explaining why simplifying webpages' menus or dropdown options enhances usability.
4. This suggests that people remember unfinished tasks better than completed ones, which is why progress bars or incomplete to-do lists effectively maintain user attention.
5. This describes a mental state of intense focus and immersion in a task, achieved when a user's skill level matches the challenge. It's often used to design engaging user experiences.
6. This suggests that users expect interfaces to function similarly to others they've used, meaning familiarity and consistency reduce cognitive load.
7. This predicts that the time required to move an object to a target (e.g., moving a mouse cursor to a button) is based on the distance to and size of the target. It explains why larger buttons or closer options are quicker to select on webpages.
8. This cognitive bias suggests that users are more likely to recall the first and last items in a list, influencing how designers place important options are navigation menus.