國立臺北科技大學 100 學年度碩士班招生考試

系所組別：5200 創新設計研究所

第一節　設計實務　試題

注意事項：

1. 本試題共四題，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。

一、機構設計（30 分）

四連桿組（Four-bar linkage）是常見的間接傳動機構，透過主動件傳遞動作，使從動件進行特定形式的運動。基本可分為三類：

1. 曲柄搖桿機構（Crank-rocker mechanism）
2. 雙曲柄機構（Double crank mechanism）
3. 雙搖桿機構（Double rocker mechanism）

請以文字與簡圖，分別說明這三種機構的運動形式與條件；並以草圖，說明這些機構在生活中常見的案例。

二、設計幾何（20 分）

請分別解釋『黃金分割』與『費氏數列』（Fibonacci Sequence）的意義與內涵，並且說明兩者之間在數學幾何的關聯性。然後，嘗試以其中的原理，發想一個設計構想（以設計草圖表現，不限產品或視覺），需解說設計重點。

三、創意設計（20 分）

迴紋針是生活中常見的文具用品，除了用於夾制文件紙張之外，請列以草圖表現，列舉其他創意用法；或者，以相同概念轉化設計成其他用品或工具。（兩者合計 10 案）

四、設計英文（共 30 分）

英翻中（每題 4 分）

1. *Continuum* is a design and innovation consultancy based in Newton, Massachusetts, with other offices in Los Angeles, Milan, Shanghai and Seoul. The company's core disciplines include industrial design, design strategy, service design, human factors, and interaction design.

2. *Good Design Award* was established based on the belief that good design is essential and indispensable to everyday life of people, and that the good design shall give people prosperous lives through the eminent power of good designs.

3. While industrial designers may be responsible for the conceptual aesthetic and ergonomic aspects of a design, the design engineer usually works with a team of engineers and designers to develop the preliminary design and the most critical parts.

克漏字與閱讀測驗（每題 2 分）

Ashley is a college student majoring in English Literature. She is very good at drawing and __4__ many prizes in the past few years with her creative design. Although Ashley always gets good grades at school, she does not want to spend too much time studying. She __5__ drawing more than studying. Her biggest dream is to become a great designer in the future. Ashley's parents have sent her to a design teacher to learn computer modeling, and Ashley __6__ hard every day. She hopes she can get into a graduate school of design after she finishes college.

4. (A) wins (B) was winning (C) has won D) is going to win

5. (A) is loving (B) loves (C) loved (D) will love

6. (A) practices (B) practiced (C) has practiced (D) is going to practice

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NTUT-100 is a fun computer program. Here is how it works:
- First, tell NTUT-100 your birthday.
- Then ask your question.
- Finally, you will get an answer from NTUT-100.

Below are the four questions people most often ask, and the funny answers they get.

Q1: Will I get a good job?　NTUT-100: Sure you will, if you are able to do a good job.
Q2: When will I die?　NTUT-100: You'll know when the time comes.
Q3: Can I find my true love?　NTUT-100: Yes you can, if there's true love in the world.
Q4: What will be on my next school test? NTUT-100: It will be what you've been taught.

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7. What does NTUT-100 do?
(A) It gives answers. (B) It collects ideas. (C) It takes tests. (D) It repeats questions.

8. What does "You'll know when the time comes" mean in the reading?
(A) You will die when you get old.
(B) You should know time flies and never waits.
(C) You can believe time is the best medicine for a broken heart.
(D) You can know when you will die only when you are dying.

9. What is the field most relating to the development of NTUT-100?
(A) Artificial intelligent. (B) Usability engineering. (C) Eco-design. (D) Emotional design.

My family and I have ridden bikes around the island several times. My friends often ask me questions about biking with their families. I'm sorry to learn that some of them don't really enjoy biking or get hurt on the road because they don't prepare well. Here I want to share some things that I think are important before you start off:
Get a bike of the right size for everyone in your family.
Check every part of your bike carefully.
Learn to fix some easy bike problems.
Check the traffic and weather news.
Pack maps, warm clothes, raincoats, snacks and enough water.

10. What is the writer talking about?
(A) How to fix a bike on the road.(B) Things to do for a safe and happy bike ride.
(C) How to save money on a bike ride.(D) Things to remember when you get hurt on the road.

11. Which is said in the reading?
(A) The size of the bike is important for biking.(B) More and more people go to work by bike.
(C) Biking is good for health.(D) Biking around the island is getting popular.

12. What is the field most relating to getting a bike of the right size for every family member?
(A) Biomimics.   (B) Ergonomics.   (C) Universal design   (D) Product semantics.