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A. Chinese-to-English Translation （30 points）

1. (3 points) 電腦科技對人類的影響是無遠弗屆的。
2. (3 points) 科技英文著重文意簡明、清晰。
3. (3 points) 作業系統的功能爲電腦資源的管理，包含記憶體管理、工作排程、檔案管理、輸出輸入管理等等。
4. (3 points) 數位化的資料都由數字 0 和 1 來表示。
5. (3 points) 保護資料的隱密性是資訊安全的最大訴求。
6. (3 points) 大量資料的檢索需仰賴資料庫管理系統技術來進行。
7. (3 points) 多媒體應用整合了文字、聲音、影像、視訊、3D 動畫等不同型態的資訊。
8. (3 points) 電腦硬體速度的提昇使得很多以往不可能的夢想都實現了。
9. (3 points) 人工智慧使得電腦變得更爲聰明、降低了人機之間的隔閡。
10. (3 points) 計算機演算法講究如何在有限的資源下，以最有效率的方式解決問題

B. Short Composition（30 points）

Title: **What do you feel about computer games?**

Do you like computer games? Write your comments with no more than 250 words in three paragraphs.

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C. Reading Comprehension (40 points)

Each passage in this group is followed by questions based on its content. After reading a passage, choose the best answer to each question. Answer all questions following a passage on the basis of what is **stated** or **implied** in that passage.

a. Passage 1

Before a machine can perform a task, an algorithm for performing that task must be discovered and represented in a form that is compatible with the machine. A machine-compatible representation of an algorithm is called a program. Programs, and algorithms they represent, are collectively referred to as software, in contrast to the machinery itself, which is known as hardware.

The study of algorithms began as a subject in mathematics. The search for algorithms was a significant activity of mathematicians long before the development of today's computers. The major goal of that search was to find a single set of directions that described how any problem of a particular type could be solved. One of the best known consequences of this early search for algorithms is the long division algorithm for finding the quotient of two multiple-digit number. Another example is the Euclidean algorithm, discovered by the ancient Greek mathematician Euclid, for finding the greatest common divisor of two positive integers.

1. What does the author think about algorithms?
(A) An algorithm is compatible with the machine.
(B) An algorithm for performing a task can be discovered only after a machine performs that task.
(C) The algorithms are studied by mathematicians before today's computers are developed.
(D) Programs are totally irrelevant with algorithms.

2. What do you think the study of algorithms is about?
(A) How a problem could be solved.
(B) Computer hardware.
(C) Greek literature.
(D) Two positive integers.

3. What is a program, based on the above description?
(A) The long division algorithm for finding the quotient of two multiple-digit number.
(B) A machine-compatible representation of an algorithm.
(C) Finding the greatest common divisor of two positive integers.
(D) A subject in mathematics.

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4. Based on the above description, which of following statements is true?
(A) The algorithm for finding the quotient of two multiple-digit number is discovered by the ancient Greek mathematician Euclid.
(B) You must become a mathematician to study algorithms.
(C) Programs, and algorithms they represent, are collectively referred to as hardware.
(D) The algorithm for finding the greatest common divisor of two positive integers was studied by an ancient Greek mathematician.

b. Passage 2

Data mining is the extraction of implicit, previously unknown, and potentially useful information from data. The idea is to build computer programs that sift through databases automatically, seeking regularities or patterns. Strong patterns, if found, will likely generalize to make accurate predictions on future data. Of course, there will be problems. Many patterns will be banal and uninteresting. Others will be spurious, contingent on accidental coincidences in the particular dataset used. And real data is imperfect: some parts are garbled, some missing. Anything that is discovered will be inexact: there will be exceptions to every rule and cases not covered by any rule. Algorithms need to be robust enough to cope with imperfect data and to extract regularities that are inexact but useful.

5. What is data mining?
(A) Data for mining minerals.
(B) Finding the algorithms to solve problems of data.
(C) Discovering the imperfect but useful data.
(D) Finding implicit and potentially useful information of data.

6. What is the idea of data mining?
(A) To discover algorithms manually.
(B) To seek data automatically.
(C) To find regularities or patterns of data automatically.
(D) To find the accidental coincidences in the particular dataset used.

7. What does the author think about data mining?
(A) Data mining is an imperfect but useful technique.
(B) Data mining can find patterns to make accurate predictions on future data.
(C) Data mining can be applied only when perfect data is provided.
(D) Data mining is an algorithm that processes complex mineral data quickly and correctly.

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8. Which of following statements for patterns and data mining is true?
(A) Many patterns discovered by data mining may be banal.
(B) All patterns discovered by data mining are interesting.
(C) Data mining is a collection of patterns how a business processes data..
(D) Data mining is a pattern of computer architecture.

c. Passage 3

What is an embedded computing system? Loosely defined, it is any device that includes a programmable computer but is not itself intended to be a general-purpose computer. Thus, a PC is not itself an embedded computing system, although PCs are often used to build embedded computing systems. But, a fax machine or a clock built from a microprocessor is an embedded computing system.

9. What is an example of embedded computing systems, based on the above description?
(A) A PC.
(B) A fax machine that includes a programmable computer.
(C) A mechanic clock.
(D) A program that runs on a general-purpose computer.

10. What does the author think an embedded computing system is about?
(A) A machine that looks like a fax machine.
(B) A software system for computation.
(C) A device whose functions are implemented, in part, by a programmable computer.
(D) A machine that computes integers like a calculator.

11. According to the above description, which of following statements is true?
(A) A clock built from a microprocessor is an embedded computing system.
(B) It is unusual to use PCs to build embedded computing systems.
(C) An embedded computing system must have a fax machine in it.
(D) A general-purpose computer is an embedded computing system.

12. Which of the following statements is true, according to the above description?
(A) A PC is a special form of an embedded computing system.
(B) A PC must have an embedded computing system in it.
(C) An embedded computing system is a general-purpose computer.
(D) A PC is a general-purpose computer.

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d. Passage 4

The development of complex software systems such as operating systems and network software would likely be impossible if humans were forced to express the algorithms involved directly in machine language. Dealing with the massive amount of intricate detail would be a taxing experience, to say the least. Consequently, programming languages similar to our pseudocode have been developed that allow algorithms to be expressed in a form that is both palatable to humans and easily convertible into machine language instructions. These languages allow humans to avoid the intricacies of registers, memory addresses, and machine cycles during the program development process and, instead, to concentrate on the properties of the problem being solved.

13. What does the author think makes it possible for human to develop complex software systems?
(A) Machine languages.
(B) Operating systems.
(C) Network software.
(D) Programming languages.

14. Which of following statements is correct, according to the paragraph?
(A) Programming languages are similar to network systems.
(B) Programming languages make it difficult for human to concentrate on the properties of the problem being solved.
(C) Programming languages are used to express the algorithms.
(D) A programming language is also called an operating system.

15. According to the above description, which of following statements is true?
(A) It is easy for human to express the algorithms in machine language when developing operating systems.
(B) A programming language is palatable to humans.
(C) The design of a programming language is similar to the design of an operating system.
(D) It is impossible to convert a program in a programming language into machine language instructions.

16. According to the paragraph, which of following items can be avoided by using programming languages?
(A) The intricacies of registers.
(B) The use of network software.
(C) Converting a program into machine language instructions.
(D) The use of computers.

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e. Passage 5

Multimedia started when the first piano was rolled into a silent movie house. Since then, multimedia, as the term seems to imply, has been defined exclusively as a combination of different media:

- as a combination of text and picture (still frame, animation, film)
- as a combination of text and sound (music, speech)
- as a combination of text, picture, and sound.

Even scientists whose names are practically synonyms for multimedia, and who are largely responsible for developments in this field, take the definition of multimedia lightly. For Negroponte (1995), multimedia is simply a mixture of data on a digital basis: bits commingle effortlessly. They start to get mixed up and can be used and reused together or separately. The mixing of audio, video, and data is called multimedia; it sounds complicated, but is nothing more than commingled bit. Multimedia is defined in a similar way by Feldman (1994): Multimedia is the seamless integration of data, text, images of all kinds and sound within a single, digital information environment. According to this definition there would be some doubt whether interactive laserdisc systems should be counted as multimedia.

17. What is the focus that the paragraph describes?
(A) Multimedia.
(B) The first piano.
(C) Audio and video.
(D) The laserdisc systems.

18. According to the above description, which of following statements is true?
(A) There is a clear and well-accepted definition of multimedia.
(B) The mixing of audio, video, and data is called multimedia.
(C) Every scientist has his own definition of multimedia and the scientists do not agree with each other.
(D) Multimedia is a field that is not studied by anyone until 1995.

19. Which of following statements is NOT true, according to the paragraph?
(A) Multimedia is simply a mixture of data on a digital basis.
(B) Feldman gives the definition of multimedia in 1994.
(C) Multimedia must include a piano.
(D) It is arguable whether interactive laserdisc systems should be counted as multimedia.

20. According to the paragraph, which of following combinations is an example of multimedia?
(A) A combination of text and telephones.
(B) A combination of text and wireless devices.
(C) A combination of text and theaters.
(D) A combination of text and pictures.