

本試題是否可以使用計算機： 可使用， 不可使用（請命題老師勾選）

考試日期：0301，節次：1

請把答案依序寫入「答案卷」內。

I. 單選題 (10*3=30%)

1. For many patients, institutional care is the most _____ and beneficial form of care.

A) pertinent	B) appropriate
C) acute	D) persistent
2. Among all the changes resulting from the _____ entry of women into the work force, the transformation that has occurred in the women themselves is not the least important.

A) massive	B) quantitative
C) surplus	D) formidable
3. Rumours are everywhere, spreading fear, damaging reputations, and turning calm situations into _____ ones.

A) turbulent	B) tragic
C) vulnerable	D) suspicious
4. She remains confident and _____ untroubled by our present problems.

A) indefinitely	B) infinitely
C) optimistically	D) seemingly
5. Fiber-optic cables can carry hundreds of telephone conversations _____.

A) simultaneously	B) spontaneously
C) homogeneously	D) contemporarily

In the 1950s, the pioneers of artificial intelligence (AI) predicted that, by the end of this century, computers would be conversing with us at work and robots would be performing our housework. But as useful as computers are, they're nowhere close to achieving anything remotely resembling these early aspirations for humanlike behavior. Never mind something as complex as conversation: the most powerful computers struggle to reliably recognize the shape of an object, the most elementary of tasks for a ten-month-old kid.

A growing group of AI researchers think they know where the field went wrong. The problem, the scientists say, is that AI has been trying to separate the highest, most abstract levels of thought, like language and mathematics, and to duplicate them with logical, step-by-step programs. A new movement in AI, on the other hand, takes a closer look at the more roundabout way in which nature came up with intelligence. Many of these researchers study evolution and natural adaptation instead of formal logic and conventional computer programs. Rather than digital computers and transistors, some want to work with brain cells and proteins. The results of these early efforts are as promising as they are peculiar, and the new nature-based AI movement is slowly but surely moving to the forefront of the field.

Imitating the brain's neural network is a huge step in the right direction, says computer scientist and biophysicist Michael Conrad, but it still misses an important aspect of natural intelligence. "People tend to treat the brain as if it were made up of color-coded transistors," he

(背面仍有題目,請繼續作答)

explains, "but it's not simply a clever network of switches. There are lots of important things going on inside the brain cells themselves." Specifically, Conrad believes that many of the brain's capabilities stem from the pattern-recognition proficiency of the individual molecules that make up each brain cell. The best way to build an artificially intelligent device, he claims, would be to build it around the same sort of molecular skills.

Right now, the notion that conventional computers and software are fundamentally incapable of matching the processes that take place in the brain remains controversial. But if it proves true, then the efforts of Conrad and his fellow AI rebels could turn out to be the only game in town.

6. The author says that the powerful computers of today _____.
- A) are capable of reliably recognizing the shape of an object
 - B) are close to exhibiting humanlike behavior
 - C) are not very different in their performance from those of the 50's
 - D) still cannot communicate with people in a human language
7. The new trend in artificial intelligence research stems from _____.
- A) the shift of the focus of study on to the recognition of the shapes of objects
 - B) the belief that human intelligence cannot be duplicated with logical, step-by-step programs
 - C) the aspirations of scientists to duplicate the intelligence of a ten-month-old child
 - D) the efforts made by scientists in the study of the similarities between transistors and brain cells
8. Conrad and his group of AI researchers have been making enormous efforts to _____.
- A) find a roundabout way to design powerful computers
 - B) build a computer using a clever network of switches
 - C) find out how intelligence developed in nature
 - D) separate the highest and most abstract levels of thought
9. What's the author's opinion about the new AI movement?
- A) It has created a sensation among artificial intelligence researchers but will soon die out.
 - B) It's breakthrough in duplicating human thought processes.
 - C) It's more like a peculiar game rather than a real scientific effort.
 - D) It may prove to be in the right direction though nobody is sure of its future prospects.
10. Which of the following is closest in meaning to the phrase "the only game in town" (Line 3, Para.4)?
- A) The only approach to building an artificially intelligent computer.
 - B) The only way for them to win a prize in artificial intelligence research.
 - C) The only area worth studying in computer science.
 - D) The only game they would like to play in town.

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II. 錯誤更正 (10*3=30%)

此部份為一短文，該文章內共有 10 個錯誤，每一錯誤均已標示在右邊標示 11-20 的劃線空格。請在答案卷上標示出每一劃線空格內錯誤的地方並更正。你可以改變一個字或刪除一個字。如果你改變一個字，請在該題號寫出原來的字與改變後

的字。如果你刪除一個字，請在該題號寫出原來的字與刪除符號 (X)。

※ 請勿在本試題紙上作答，否則不予計分。

範例：

Television is rapidly becoming the literatures of our periods. 1. _____

Many of the arguments having used for the study of literature. 2. _____

請在答案卷上寫

1. periods → period

2. having → X

Until the very latest moment of his existence, man has been bound to the planet on which he originated and developed. Now he had the capability to leave that planet and move out into the universe to those worlds which he has known previously only directly. Men have explored parts of the moon. put spaceships in orbit around another planet and possibly within the decade will land into another planet and explore it. Can we be too bold as to suggest that we may be able to colonize other planet within the not-too-distant future? Some have advocated such a procedure as a solution to the population problem: ship the excess people off to the moon. But we must keep in head the billions of dollars we might spend in carrying out the project. To maintain the earth's population at its present level, we would have to blast off into space 7,500 people every hour of every day of the year.

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

Why are we spending so little money on space exploration? Consider the great need for improving many aspects of the global environment, one is surely justified in his concern for the money and resources that they are poured into the space exploration efforts. But perhaps we should look at both sides of the coin before arriving hasty conclusions.

17. _____

18. _____

19. _____

20. _____

(背面仍有題目,請繼續作答)

III. 英翻中 (40%)

For a multihop network, capacity can be defined as the total rate at which information data originated by all sources reaches the final destinations. Therefore, the general problem of maximizing capacity can be decomposed into two related subproblems: maximizing the total amount of information data that can be carried through all links for a given transmit power and minimizing the number of hops required for the data to reach the destinations. The optimum solution for maximizing network capacity is a strategy that jointly designs techniques and algorithms for physical, data link, and network layers. More specifically, this strategy determines the following decision variables:

- The techniques and technologies to be used in receivers and transmitters
- To whom the transmission should be addressed
- Which channels to use for transmissions and receptions
- The amount of information to be transmitted on each channel
- The transmit power level

The optimum solution for these decision variables depends on:

- The available information on the network
- System constraints
- A defined objective function

The information available to receivers and transmitters may include knowledge of traffic characteristics, statistics of the interference or the exact value of the interference, propagation losses between different nodes, number of packets in the buffers, and so on. Constraints may include maximum transmit power of each node, maximum acceptable delay for different types of traffic, complexity of algorithms, maximum probability of error, or minimum guaranteed information rate. The objective function could be defined in several ways in order to minimize network resources (e. g., total transmit power), maximize system throughput, minimize interference, or maximize total expected forward progress.

(source: A. N. Zadeh, B. Jabbari, R. Pickholtz and B. Vojcic, "Self-Organizing Packet Radio Ad Hoc Networks with Overlay (SOPRANO)", IEEE Communications Magazine, pp.149-157, June 2002)