

※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

一、綜合測驗(50 分，單選題，每題 2 分。):

Multiple choice: Write down the question numbers in series on the answer sheet, followed by one best answer of your choice to each question (50%, 2% for each question).

1. Aspirin _____ from the bark of willow trees.
(A) was first extracted
(B) it was first extracted
(C) extracted first
(D) first extracted
2. Flying faster than sound _____ to be beyond human achievement.
(A) was thoughtful
(B) it was long thought
(C) which was long thought
(D) was long thought
3. Nesting places _____ according to species among the various kinds of sea birds.
(A) divided
(B) are dividing
(C) are divided
(D) which are divided
4. Cells regulate their movement _____ positions in response to environmental stimuli.
(A) have
(B) where
(C) and
(D) but
5. A doctor deals with objective evidence _____ with patients' subjective descriptions.
(A) rather than
(B) instead than
(C) than
(D) than rather
6. All life on earth exists because _____.
(A) but photosynthesis and respiration
(B) only photosynthesis and respiration
(C) of photosynthesis and respiration
(D) photosynthesis and respiration
7. Researchers have confirmed _____ some people are missing a special growth factor.
(A) and that
(B) so that
(C) because
(D) that

8. Bifocal glasses are among the inventions _____ Benjamin Franklin.
(A) have been attributed to
(B) which attributed to
(C) attributed to
(D) were attributed to
9. There are very few areas in Taiwan _____ be grown successfully.
(A) where apples can
(B) apples can
(C) apples that can
(D) where can apples
10. Antibodies _____ by small, round cells called lymphocytes and plasma cells.
(A) to be made
(B) are made
(C) that makes
(D) making
11. If it _____ rain tomorrow, I will go to school to do experiments.
(A) wouldn't
(B) doesn't
(C) didn't
(D) won't
12. I would have called you to discuss new data, _____.
(A) if I knew your telephone number
(B) but I had forgotten your telephone number
(C) but I forgot your telephone number
(D) if I had not remembered your telephone number
13. Taiwanese are eating _____ vegetables per person today as they did 20 years ago.
(A) more than twice
(B) more than twice as many
(C) what are twice as many
(D) twice as many are
14. The facilities of the older hospital _____.
(A) is as good or better than the new hospital
(B) are as good or better that the new hospital
(C) are as good as or better than the new hospital
(D) are as good as or better than those of the new hospital
15. Pandas are _____ animals.
(A) plant-eating
(B) plant-eaten
(C) eating plants
(D) to eat plants

16. _____ at the argument, the scientist quickly left the meeting room.

- (A) Angering
- (B) Having angered
- (C) Being angry
- (D) Angered

17. Electrical resistance is a common property of all materials, _____.

- (A) differs only in degree
- (B) it only differs in degree
- (C) only in degree it differs
- (D) differing only in degree

18. The tissue appears _____ by 50% since last Monday.

- (A) having shrunk
- (B) to shrink
- (C) to have shrunk
- (D) to be shrinking

19. _____ received Ph.D. degrees as today.

- (A) Never so many women have
- (B) Never have so many women
- (C) Never did so many women
- (D) Women who have never

20. My classmate Peter was not in class yesterday, and _____.

- (A) me neither
- (B) I also
- (C) neither was I
- (D) either was I

21. _____ to realize that there is no such thing as absolute time.

- (A) There is essential
- (B) Whether it is essential
- (C) Because it is essential
- (D) It is essential

22. _____ coming of the Computer Age, artificial intelligence becomes very popular today.

- (A) While
- (B) It is the
- (C) When the
- (D) With the

23. _____ single-cell organisms, nearly all animals have a nervous system.

- (A) Regardless of
- (B) Despite that
- (C) Except for
- (D) In spite of

24. _____, the lion is a member of the cat family.

- (A) Alike the tiger
- (B) Like the tiger
- (C) Liking the tiger
- (D) Just liking the tiger

25. Lead _____ as a material for sculpture since the time of the early Greeks.

- (A) has been used
- (B) being used
- (C) has used
- (D) is used

二、閱讀測驗 (10 分，單選題，每題 2 分。):

Reading comprehension: Read the article below and then answer the following questions. Remember, write down the question numbers in series on the answer sheet, followed by one best answer of your choice to each question (10%, 2% for each question).

BBC News shows that a rare genetic mutation causes the members of an Italian family to have an extremely low sensitivity to pain. The members of this family can experience bone fractures without feeling any pain. On top of this, they can also eat hot chili peppers with ease. Interestingly, the family members have never seen the condition as a negative, although it does have its downsides. For example, they often damage the roof of their mouths on hot drinks because they are unaware that they are burning themselves. Similarly, the 24-year-old son has extremely delicate ankles due to numerous microfractures acquired while playing soccer.

Scientists have recently been studying this fascinating family to gain a better understanding of exactly why these people don't feel much pain. The results show that the nerve fibers of the family members have normal density but are not functioning as they should be. Researchers obtained DNA from each family member and mapped out the protein-coding genes in the genome, eventually identifying a point mutation in the ZFHX2 gene. They then bred mice that had the same mutation in the ZFHX2 gene. As one would imagine, these mice also gained a considerable tolerance to pain.

With more research on how the mutation impacts pain sensitivity, and to see what other genes might be involved, scientists can identify novel targets for drug development. The family has proven to be an invaluable tool for understanding the genetics of pain and potentially inspiring special pain relief treatments for chronic pain sufferers in the future.

1. The word "downsides" in line 4 is closest in meaning to

- (A) Basements
- (B) Backgrounds
- (C) Disadvantages
- (D) Limitations

2. Which of the following statements best describes the members of this Italian family?

- (A) They never have a burn injury in the mouth.
- (B) Their insensitivity to pain bothers them very much.
- (C) Eating hot chili peppers relieves their pain.
- (D) The son often gets injured when playing soccer.

3. The word "considerable" in the last of line of the 2nd paragraph is closest in meaning to

- (A) Thoughtful
- (B) Respectable
- (C) Deliberative
- (D) Substantial

4. According to the 2nd paragraph, which of the following statements is TRUE?

- (A) The family members' nerve fibers actually function normally.
- (B) ZFH2 gene encodes a protein associated with pain.
- (C) The mutant mice are imaginary.
- (D) The genes in the genome are identical.

5. According to the 3rd paragraph, which of the following statements is TRUE?

- (A) The research on the family members is not valuable.
- (B) ZFH2 gene may not be the only gene associated with pain insensitivity.
- (C) A special pain relief treatment was developed for the human in this research.
- (D) No target for drug was found in this research

三、字彙中翻英 (10 分，每題 1 分。):

Translation: Translate the following terms into English (10%, 1% for each question). Write the question numbers in series and your answers on the answer sheet.

1. 粒線體
2. 神經元
3. 血紅素
4. 動脈
5. 脾臟
6. 糖尿病
7. 新陳代謝
8. 體積
9. 實驗室
10. 燒杯

四、字彙英翻中 (10 分，每題 1 分。):

Translation: Translate the following terms into Chinese (10%, 1% for each question). Write the question numbers in series and your answers on the answer sheet.

1. Mechanism
2. Abstract
3. Proposal
4. Emergency
5. Consistence
6. Electrophoresis
7. Investigation
8. Metastasis
9. Meiosis
10. Intestine

五、文句中翻英 (10 分，每題 2 分)

Translation: Translate the following sentences into English (10%, 2% for each question). Write the question numbers in series and your answers on the answer sheet.

1. 一個水分子是由兩個氫原子與一個氧原子所組成。
2. 缺少運動會導致肥胖與高血壓。
3. 吸煙嚴重影響人體健康。
4. 肝臟比心臟還要重。
5. 細胞的數量在 7 天內逐漸增加。

六、文句英翻中 (10 分，每題 2 分)

Translation: Translate the following sentences into Chinese (10%, 2% for each question). Write the question numbers in series and your answers on the answer sheet.

1. Sudden loss of movement on one side of the body is characteristic of a stroke.
2. Statistical analyses demonstrate a close correlation between genetic mutations and cancers.
3. PM2.5 refers to atmospheric particulate matter with a diameter of less than 2.5 micrometers.
4. The results are entirely unexpected and contrary to the original hypothesis of the scientist.
5. Mary adds some sodium chloride into distilled water to make 100 ml of 0.9% normal saline.