

國立高雄大學九十六學年度轉學招生考試試題

科目：英文
考試時間：90 分鐘

系所：運動健康與休閒學系
土木與環境工程學系
本科原始成績：100 分

是否使用計算機：否

I. Choose the answer that best completes the sentence. 30% 選出正確答案

1. Ms. Nicholson was hired because of her experience, skill, and ____.
A. creation B. creative C. creativity D. create
2. Natural disasters can cause the greatest nations to ____.
A. decrease B. subsided C. reduce D. shrink
3. This paint is meant to be used on the ____ of houses.
A. external B. outsiders C. exteriors D. outer
4. This new policy must be ____ gradually to avoid confusion.
A. implemented B. affected C. exercised D. resulted
5. Information about employees' salaries is considered ____.
A. confidence B. confidential C. confiding D. confident
6. After two months of burning sun, the plants were completely ____.
A. humid B. arid C. soaked D. desiccated
7. Camels store fat in their humps to travel in ____ lands.
A. arid B. moist C. baked D. immersed
8. The guards ____ the prisoner as he was climbing out of the window.
A. depleted B. intercepted C. intervened D. respected
9. The largest ____ forest in the world is in northern Arizona.
A. benign B. intrepid C. ruthless D. petrified
10. She was so ____ of others that she always served her guests their favorite foods even if she did not like them.
A. generous B. merciless C. selfish D. mean

II. Choose the underlined word or phrase that is incorrect. 30% 選出錯誤答案

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1. What is this statement intended to?
 - A. Announce an expansion
 - B. Tell about a merger
 - C. Reassure the public about safety
 - D. Give a new policy

2. What will the company do with existing facilities?
 - A. Continue to make them safe
 - B. Tear them down
 - C. Have them inspected
 - D. Operate them

Questions 3-6 refer to the following magazine article.

Busy people don't want their vacations to be a hassle. That's why all-inclusive resorts are becoming popular. At these resorts, one price includes all meals, drinks, lodging, and sightseeing. Golf, tennis, and swimming are available for free. Other sports, such as scuba diving, deep sea fishing, and rock climbing, may require separate fees for equipment rental, but instruction and excursions are included. Many resorts also include children's activities as part of the package. Check with a travel agent to find an all-inclusive resort with activities you would enjoy.

3. What does it mean to be an "all-inclusive" resort?
 - A. They're in an exclusive location.
 - B. One price includes food, lodging, and activities.
 - C. Only families may stay there.
 - D. Room price and airfare are included.

4. Why are all-inclusive resorts popular?
 - A. They offer carefree vacations.
 - B. They are cheaper.
 - C. They have more facilities.
 - D. Travel agents handle all of the planning.

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9. If you buy an item and find it for a lower price within 30 days, what will the store do?
- A. Give you a second item.
 - B. Pay you the difference in price.
 - C. Buy the item from you.
 - D. Refund your money.
10. What kind of offers are not covered by this guarantee?
- A. In-store items
 - B. New items
 - C. Clearance sales
 - D. Limited quantity offers

Questions 11-12 refer to the following notice.

All computer disks must be scanned immediately upon entry to this building. Standard Chemical Company policy prohibits the possession of any personal disks on site. Disks authorized for business must be declared, accompanied by a pass, and scanned for viruses. When entering the facility, failure to declare disks will result in confiscation. The term "disk" refers to any computer-data medium.

11. Where would this notice most likely to be seen?
- A. In a health clinic
 - B. At a computer terminal
 - C. At the entrance of Standard Chemical
 - D. In the company cafeteria
12. What will happen if a disk is not declared?
- A. It will be erased.
 - B. It will be scratched.
 - C. It will be duplicated.
 - D. It will be taken away.

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Questions 13-17 refer to the following newspaper article.

Job trends for the future emphasize careers in sales and marketing. Most of the growth will come in international sales, high technology, and electronic marketing. Research shows that overseas sales of high tech equipment and technology will increase 20% in the next decade.

The Internet is the primary source for advertising and marketing to these overseas customers. At the same time, however, successful marketers must find new avenues to increase consumer awareness of their products. As some clients become inundated by information on the Internet, and as others are still just learning to navigate the Web, the marketers of the future will have to be inventive.

More traditional sales skills, such as bilingualism and an agreeable character, are still useful. Willingness to travel is also a plus.

13. What kinds of careers show promise for the future?
- A. Research and development
 - B. Sales and marketing
 - C. High Technology
 - D. Travel agents
14. Why are these careers increasing in importance?
- A. Companies are trying to focus on profits.
 - B. They address a neglected market segment.
 - C. High-tech sales are growing.
 - D. Most marketing will occur on the Internet.
15. According to the article, how will new consumers most likely learn about products?
- A. Door-to-door sales
 - B. The Web
 - C. Inventive new methods
 - D. International trade shows

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16. The author believes that the successful marketer must be

- A. bilingual.
- B. overseas.
- C. abreast of research.
- D. creative.

17. According to the article, why isn't Internet advertising always effective?

- A. Some users see too much of it; some see too little.
- B. Many users have limited English skills.
- C. Access to the Web may be limited.
- D. Consumers are unaware of products on the Internet.

Questions 18-20 refer to the following schedule.

| <u>BUS FARES</u> | | <u>Peak</u> | <u>Off Peak</u> |
|-------------------------|-----------------------|-------------|-----------------|
| Effective March 1 | Any one zone | 1.00 | .75 |
| Peak hours, | Between zones 1 and 2 | 1.35 | 1.00 |
| Weekdays 5:30-9:30 A.M. | zones 1 and 3 | 1.70 | 1.35 |
| and 3:00-7:00 P.M. | zones 2 and 3 | 1.35 | 1.00 |

18. When do these bus fares take effect?

- A. Immediately
- B. On March 1
- C. On February 28
- D. Next week

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19. Which time is off-peak?

- A. 7:00 A.M. Monday
- B. 9:00 A.M. Wednesday
- C. 8:00 P.M. Thursday
- D. 5:00 P.M. Friday

20. What is the peak fare between zones 1 and 3?

- A. \$.75
- B. \$1.00
- C. \$1.35
- D. \$1.70

國立高雄大學九十六學年度轉學招生考試試題

科目：微積分
考試時間：90 分鐘

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本科原始成績：100 分

是否使用計算機：否

1. Evaluate the limit (10)

i. $\lim_{x \rightarrow 0} \frac{\sin 2x}{\sin 3x}$

ii. $\lim_{x \rightarrow \infty} x^{1/x}$

2. Find dy/dx (30)

i. $y = \frac{\sqrt[3]{x}}{x^3 + 1}$

ii. $(\sin \pi x + \cos \pi y)^2 = 2$

iii. $y = (x - 2)^{x-2}$

3. Evaluate (20)

i. $\int x^5 \ln x \, dx$

ii. $\int_0^\infty \int_0^\infty x y e^{-(x^2+y^2)} \, dx \, dy$

4. $w = x^2 + y^2 + z^2$, $x = e^t \cos t$, $y = e^t \sin t$, $z = e^t$, find dw/dt . (10)

5. Find a power series for the function, centered at 0, and determine the interval of convergence. (10)

$$g(x) = \frac{4x - 7}{2x^2 + 3x - 2}$$

6. A 20 m chain weighing 100 N per meter is lying coiled on the ground. How much work is required to raise one end of the chain to a height of 20 m so that it is fully extended. (10)

7. A man 6 feet tall walks at a rate of 5 feet per second away from a light that is 15 feet above the ground. When he is 10 feet from the base of the light, at what rate is the length of his shadow changing? (10)

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科目：工程數學
考試時間：90 分鐘

系所：土木與環境工程學系
本科原始成績：100 分

是否使用計算機：是

1. 求解下列微分方程式

(a) $2xyy' - y^2 + x^2 = 0$, 其中 $y' = \frac{dy}{dx}$ (10%)

(b) $y' - 2y = 1 - 2x$ (10%)

(c) $y'' + y = 2 \sin x$ (10%)

(d) $x^2 y'' + xy' + 9y = 0$, $y(1) = 2$, $y'(1) = 0$ (15%)

2. 利用 Laplace 轉換求解下列聯立微分方程 (15%)

$$\begin{aligned} y_1' &= -y_2, & y_1(0) &= 1, & y_2(0) &= 0 \\ y_2' &= y_1 \end{aligned}$$

3. 向量 $\vec{F}(\vec{r}) = x^2 \hat{i} + y^2 \hat{j}$, 求線積分 $\int_C \vec{F}(\vec{r}) \cdot d\vec{r}$ 之值, 其中 C 為沿 $y = 1 - x^2$ 從 $x = -1$ 到 $x = 1$ 之曲線。 (15%)

4. 矩陣 A 為一 $n \times n$ 之方陣, 若 A 為可逆, 證明其逆矩陣為唯一。 (10%)

5. 矩陣 $A = \begin{bmatrix} 5 & 10 \\ 4 & -1 \end{bmatrix}$, 求其特徵值(eigenvalue)與對應之特徵向量(eigenvector)。 (15%)