

I. Multiple Choice Questions: Choose only one correct answer to each question 60%

Part A. Vocabulary 20%

- ____ 1. Taiwan today is a _____ democracy with a highly competitive market-oriented economy.
(A) hulking (B) humpy (C) hurly-burly (D) hole-and-corner
- ____ 2. CD sales have been declining year-on-year with the introduction of CD _____ and MP3 files.
(A) burners (B) collectors (C) composers (D) lovers
- ____ 3. We're always in search of _____ in technology development.
(A) trespass (B) straightness (C) crackdown (D) breakthroughs
- ____ 4. Although youthful, vigorous and prosperous, the Taiwanese have become victims of an education system that seeks to produce _____ earners rather than original thinkers.
(A) wholesome (B) high-wage (C) weary (D) high-handed
- ____ 5. John's _____ is bothering him because he lied to his colleagues.
(A) consensus (B) conscience (C) consciousness (D) consentience
- ____ 6. Mary is very _____. She says exactly what she's thinking even if it hurts.
(A) questionable (B) befuddled (C) bashful (D) blunt
- ____ 7. This gourmet restaurant has a most _____ group of patrons, including Catholics, Moslems, Buddhists and Hindus.
(A) elated (B) elective (C) eclectic (D) elastic
- ____ 8. Investors have become more _____ after the recent stock market crash.
(A) circumspect (B) circumfluent (C) circumjacent (D) circumpolar
- ____ 9. In Chinese, there is no _____ at the end of a word to indicate the plural form.
(A) inflection (B) infliction (C) inflation (D) infraction
- ____ 10. The _____ growth in the number of users of the Internet is the most amazing phenomenon in mass communication in recent years.
(A) explorative (B) exponential (C) expiatory (D) explicable

Part B. Grammar 20%

- ____ 11. The music is becoming more diverse that young people _____ complete freedom to access and exchange information.
(A) having (B) being (C) were (D) have had
- ____ 12. Without direct access to information and resources in WHO (World Health

- Organization), Taiwan _____ to fight diseases on its own.
(A) has had (B) had being (C) has been (D) was
- _____ 13. Tina is so candid that when I'm listening to her, I feel _____ she is my trust friend.
(A) even if (B) as if (C) what if (D) that if
- _____ 14. Nowadays, the television _____ as a babysitter, with nannies particularly.
(A) was used (B) has using (C) is being used (D) is been used
- _____ 15. Susan _____ stupid all in her life.
(A) has been being (B) is been (C) has being (D) was been
- _____ 16. The agency sent us several applicants, the most qualified _____ was the first one.
(A) that (B) whose (C) in whom (D) of whom
- _____ 17. It has been suggested that each member _____ some money for the renovation of the clubhouse.
(A) contributes (B) has contributed (C) contribute (D) has been contributed
- _____ 18. It _____ by many that she had married for money.
(A) is thinking (B) thinks (C) was thought (D) thought
- _____ 19. I haven't gone to that exhibit yet, nor do I have any intention _____.
(A) x (B) to (C) in (D) of
- _____ 20. _____ every effort is being made to improve the financial condition of this company, the term of the loan will be extended.
(A) As much as (B) As well as (C) Since that (D) Inasmuch as

Part C. Cloze Test 20%

The talented Tom Hanks has played many different movie roles. Terminal is the first movie _____ 21 _____ he must speak with a European accent. He plays Viktor, a traveler _____ 22 _____ small country is destroyed by war when he takes a plane to America. Viktor cannot return home, _____ 23 _____ can he enter the U.S. Then he falls in love with a pretty flight attendant and _____ 24 _____ plan an escape!

- _____ 21. (A) in which (B) where (C) that (D) which
_____ 22. (A) that (B) whom (C) who (D) whose
_____ 23. (A) nor (B) or (C) seldom (D) even
_____ 24. (A) is (B) have (C) must (D) ought

The roommate situation is the first challenge students face. Learning to tolerate a stranger's idiosyncrasies _____ 25 _____ teach flexibility and the art _____ 26 _____ compromise. But the learning process is often painful.

___25. (A) ought (B) may (C) like (D) as

___26. (A) in (B) at (C) of (D) on

Campus officials say that communicating on the Internet or roaming the huge universe of information ___27___ the World Wide Web holds an especially powerful lure for many college students ___28___ it takes them ___29___ a vast new realm of learning and research, usually ___30___ no cost.

___27. (A) on (B) in (C) at (D) of

___28. (A) which (B) whose (C) what (D) because

___29. (A) for (B) into (C) of (D) at

___30. (A) of (B) on (C) at (D) in

II. Reading Comprehension: Choose the best one answer to each question
20%

Learning is an active, constructive process whereby the learner strategically manages the available cognitive resources to create new knowledge by extracting information from the environment and integrating it with information already stored in memory. With the rapid development of computer technology and its application in language instruction, many researchers in the past ten years have engaged in the study of this kind of active and constructive learning process in multimedia environment. Researchers have found that a multimedia learning environment provides the means to facilitate the learning process by manipulating the availability of specific information at a given moment, by controlling the duration of that availability, by varying the way information is presented, and by ensuring the ease with which it can be searched.

___31. What is the main idea of the passage?

(A) Multimedia learning environment organizes the information for learners.

(B) Multimedia learning environment differs from computer technology.

(C) Multimedia learning environment provides the availability in the learning process.

(D) Multimedia learning environment controls the duration of learning.

___32. Which one of the followings can identify the topic?

(A) Researchers have pointed out the rapid development of learning.

(B) Multimedia environment facilitates the learning process.

(C) The learner extracts information and stores in memory.

(D) Learning is an active and constructive process.

Complimenting is a kind of speech act belonging to the category of expressives.

Complimenting is a positive politeness strategy aiming to praise the addressees for a past or present action. In other words, compliments are prime examples of speech acts that notice and attend to the hearer's interests, wants, and needs. A frequent denotation is Holmes's (1988:446) definition: "A compliment is a polite speech act which explicitly or implicitly attributes credit to someone other than the speaker. Usually, the person addresses for something good which is positively valued by the speaker and hearer." She defines a compliment as a speech act that is accomplished either explicitly or implicitly to express admiration or approval for some good of the addressee. In such a situation, explicit compliments are those whose meaning is understood literally, as in a direct speech act. Similarly, implicit compliments account for indirect speech acts whose meaning can be inferred among participants.

- ____ 33. Which one of the followings expresses the topic of this passage?
- (A) The various categories of expressives
 - (B) The direct and indirect speech acts
 - (C) The positive politeness strategy of the speakers
 - (D) The definition and classification of compliments
- ____ 34. Which one of the followings is not correct?
- (A) Compliments notice the hearer's interests and needs.
 - (B) A compliment expresses admiration for something good of the addressee.
 - (C) A compliment is a polite speech which is valued by the speaker.
 - (D) Implicit compliments are those whose meaning is understood literally.

Traditionally, sculpture as a genre has not been as powerful of a creative phenomenon in Pacific-rim cultures like China, Japan or Korea. But it has thrived in cultures of the Aegean, like the Cycladic islands and later the mainland of Greece centering on Athens where stone sculpture reached its apogee early, attaining ease and fluidity in the round, as well as becoming a palpable conveyor of motion and emotions. To this day, Europeans walking the streets, let alone going into cathedrals or museums, are profoundly familiar with images of solid forms moving in space.

- ____ 35. The passage is about ____.
- (A) Aegean
 - (B) space
 - (C) sculpture
 - (D) genre

After I had been living in Singapore for 18 months, my return to the U.K. was depressing when it came to fish dinners. Having enjoyed my sojourn in Southeast Asia and discovered Asian wet-market culture with the wonderful selection of live seafood and fresh fish including blue-fin tuna, wild sea bass, and coral grouper, going home was a shock. Of course, in the U.K. we have superb cold-water fish such as

halibut, cod, and haddock, but when you buy seafood you'll find yourself gazing in disbelief at the prices and at the sorry-looking half-frozen display of defrosting specimens that an Asian chef would reject immediately.

- ____ 36. Which one of the followings is not listed in the passage?
(A) geographic region (B) restaurants (C) delicious dishes
(D) markets
- ____ 37. What might be a good title for this passage?
(A) Prices of Fish (B) Defrosting Specimens (C) Southeast Asia
(D) Wet-market Culture

If you are a frequent patron of fast-food restaurant in Taipei, you may have discovered that most stores have added some new dishes to their menus. For the first time since it set up shops in Taiwan 19 years ago, KFC has introduced a pork burger. McDonald has also added a pork burger to its offerings, and Japanese-owned Mos Burger has started to serve a shrimp burger and seafood meals.

All of the changes were adopted to make up for declining sales of chicken and beef following the spread of avian influenza across 10 countries in Asia since mad cow disease discovered on December 23, 2003 in Washington State in the United States. Although the bird flu has appeared in Taiwan located as the weaker strain this year, the government's Council of Agriculture reports that at least affected 371,000 chickens and ducks had been put to death in the end of February. With regard to the mad cow disease, the government stipulated that any beef containers packaged after December 24, 2003 would not be allowed to enter Taiwan.

- ____ 38. Which one of the followings is not correct?
(A) The avian flu and mad cow disease have caused consumers to promote seafood.
(B) The bird flu has appeared in Taiwan located as the weaker strain.
(C) The government stipulated a ban on beef imports.
(D) Fast-food restaurants set up in Taiwan nineteen years ago.
- ____ 39. The main idea of this passage is that _____.
(A) fast-food restaurants have added new dishes for consumers.
(B) the spread of avian influenza comes across ten countries in Asia.
(C) the owners of the fast-food restaurants acknowledge the great impact on the diseases.
(D) mad cow disease has been discovered in Washington State in the United States.
- ____ 40. It can be inferred from this passage that _____.
(A) fast-food restaurant owners welcome beef imports from mad-cow-

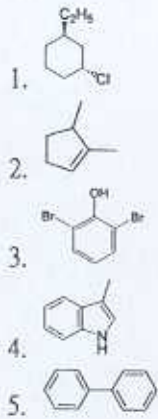
disease-free countries.

- (B) fast-food restaurants have to revise their menus or sources of supply.
- (C) the wave of international epidemics has triggered considerable anxiety among government workers.
- (D) the sales of chicken and beef have been changed to well-cooked rice.

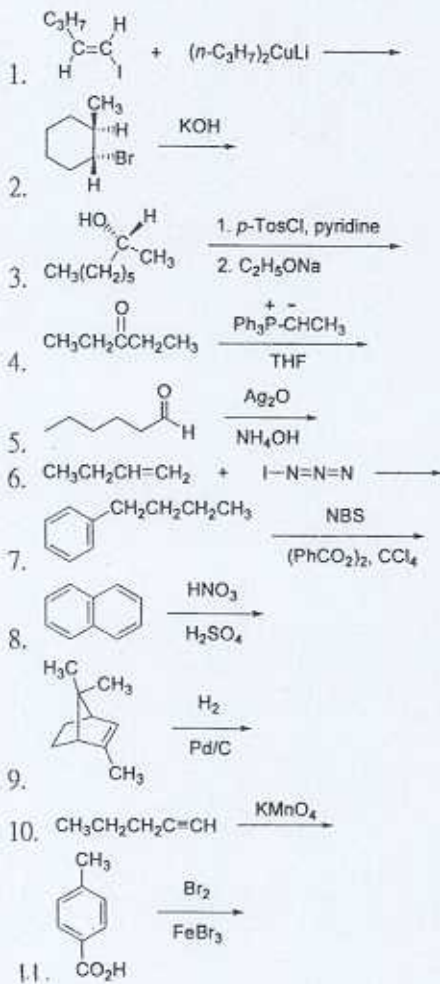
III. Writing an Essay 20%

Topic: Art is engendered in the genuine creativity and inspiring originality. Some say that genius is liberated only when the artist remains deaf to outside noises, deeply fascinated by, and more than satisfied with, the ever-expanding horizons within. What are your viewpoints and expectations about genius?

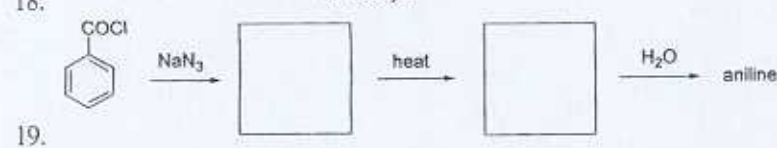
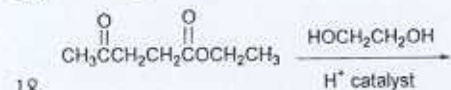
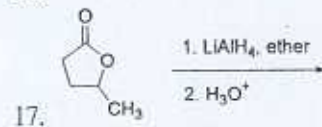
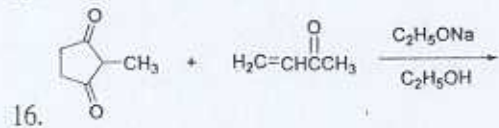
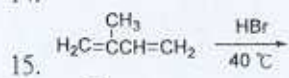
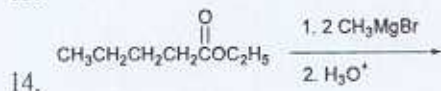
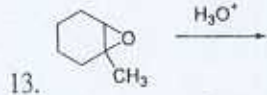
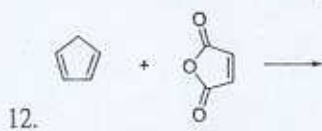
I. Give IUPAC name for the following compounds (10%)



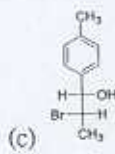
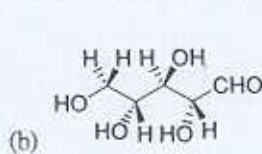
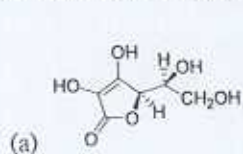
II. Give the major product(s) of the following reactions (40%)



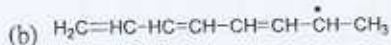
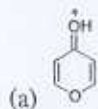
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III. Assign R or S configurations to the chirality centers in the following molecules (6%)



IV. Draw the resonance structures for each of the following species (6%)



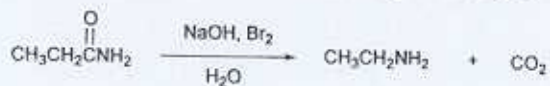
V. What are the masses of the charged fragments produced in the following cleavage pathways? (8%)
(a) Alpha cleavage of 2-pentanone (b) McLafferty rearrangement of 4-methyl-2-pentanone

VI. Propose structures for compounds that fit the following ^1H NMR data (8%)

(a) $\text{C}_7\text{H}_{16}\text{O}$: δ 0.95 (6 H, doublet, $J = 7$ Hz), 2.10 (3 H, singlet), 2.43 (1 H, multiplet)

(b) $\text{C}_9\text{H}_{11}\text{Br}$: δ 2.15 (2 H, quintet, $J = 7$ Hz), 2.75 (2 H, triplet, $J = 7$ Hz), 3.38 (2 H, triplet, $J = 7$ Hz), 7.22 (5 H, singlet)

VII. Propose a mechanism for the following reaction (8%)



VIII. Propose synthesis of 4-chloro-1-nitro-2-propylbenzene from benzene (6%)

IX. Propose synthesis of *o*-methylbenzoic acid from *o*-methylaniline (8%)

1. Answer the following natural drugs including their botanical origin and family name, active constituent, used part and medical use. 30 %

- | | | |
|--------------------|-------------|--------------|
| a. Cascara Sagrada | b. Senna | c. bloodroot |
| d. opium | e. ma huang | f. Ipecac |

2. Give a major constituent (name and structure) of the following volatile oils. 10 %

- | | | |
|-------------------|-------------------|--------------|
| a. eucalyptus oil | b. peppermint oil | c. thyme oil |
| d. cinnamon oil | e. fennel oil | |

3. Describe the enzymatic hydrolysis of amygdalin. 10 %

4. Give the name of natural drug containing the following constituents and the medical use of these natural drugs. 20 %

- | | | |
|-------------------------------------|----------------------|--------------------|
| a. silybin | b. berberine | c. quinine |
| d. pilocarpine | e. 8-methoxypsoralen | f. podophyllotoxin |
| g. capsaicin | h. ginkgolide A | i. glycyrrhizin |
| j. Δ^9 -tetrahydrocannabinol | | |

5. Give a separation scheme with liquid partition method to separate tertiary bases, tertiary phenolic bases, quaternary bases, neutral nonphenolic constituents and nonalkaloidal phenolics from a natural drug. 20 %

6. Explain the following terms. 10 %

- isoprene rule
- chemotaxonomy

簡答題:(註:作答時專有名詞以英文書寫)

- 一、寫出兩種含 aromatic groups 的胺基酸。(2%)
- 二、Ketone bodies 由那些組成份。(3%)
- 三、寫出人體內兩種重要的六碳醣。(2%)
- 四、RNA 有那三種。(2%)
- 五、寫出三種跟能量代謝有關的維生素。(3%)

問答題:

- 一、寫出 Citric acid cycle 的中間代謝物質及說明其重要性。(13%)
- 二、人體內有那些抗氧化酵素及抗氧化物質?(10%)
- 三、說明 Fatty acid 如何轉換代謝成 acetyl-CoA。(10%)
- 四、Enzyme 的活性受那些因素影響?(5%)
- 五、Noncompetitive inhibitors 對 K_m 及 V_{max} 值的影響如何?(5%)
- 六、說明 DNA replication 的過程及參與酵素。(10%)
- 七、敘述 Urea cycle 對生理代謝的重要性。(5%)
- 八、Pentose phosphate pathway 的主要產物有那些,及其重要性。(5%)
- 九、有一蛋白質混合物,內含 A、B、C、D 和 E 等五種蛋白質組成,其分子量及等電點分別為:

A: mw=15 kD; pI=3.2

B: mw=15 kD; pI=4.2

C: mw=25 kD; pI=3.2

D: mw=35 kD; pI=4.2

E: mw=45 kD; pI=5.6

請設計實驗將此蛋白質混合物分離及純化的方法。(15%)

- 十、嚴重急性呼吸道症候群(SARS) 由病毒引起,可造成人類重大傷亡,我們如何以生物技術方法(如基因工程)尋找出診斷防治及抗 SARS 物質的方法。(10%)