

Part I. Question 1 to 10, please choose the answer closest to the underlined word or phrase. One Answer Only. 2 points each.

1. Leaders of the world's largest economies are close to an agreement to tackle the global financial crisis.
(A) fight (B) meditate (C) forbid (D) deal with
2. I think people realize the economy seemingly fell off the cliff.
(A) inclined (B) caught up (C) help up (D) slumped
3. In the future, globalization is going to be increasingly driven quickly to its processes and technologies, and start to march forward.
(A) directed (B) motivated (C) forced (D) manipulated
4. The home team kicked off the season with an easy win.
(A) interrupted (B) commenced (C) avoided (D) complicated
5. The use of stem cells is controversial - opponents object on the grounds that it is unethical to destroy embryos in the name of science.
(A) adversaries (B) allies (C) forerunners (D) associates
6. Slumdog Millionaire is about a Mumbai teen who grew up in the slums, becomes a contestant on the Indian version of "Who Wants To Be A Millionaire?"
(A) asylum seeker (B) gangster (C) youngster (D) homeless
7. Critical listening is a difficult kind of listening because it requires you to both interpret and evaluate the message.
(A) understand (B) integrate (C) intrigue (D) compose
8. He is worried about a potential quiz tomorrow.
(A) possible (B) actual (C) providential (D) surprising
9. These two girls prefer to have intimate conversation one-on-one
(A) personal (B) secret (C) intelligent (D) discreet
10. His position was contrary to that of the teacher's
(A) puzzling (B) opposite (C) compatible (D) foreseeable

Part II. Question 11-15, please choose the answer that best completes the sentence. Question 16-20, please choose the best answer to fill each of the numbered blanks in the passage.

In many countries, it is considered 11 to appear naked or even half-naked on a public beach. However, some places often have a few 12 beaches that are designated as nudist or "clothing optional" beaches, where uninhibited people can fully 13 themselves to the sun. Other countries, especially those where 14 are hot and attitudes are 15, impose no restrictions at all, so people may sunbathe topless or nude even on the public beaches.

11. (A) inappropriate (B) interesting (C) conservative (D) considerate
12. (A) inclusive (B) executive (C) secluded (D) acceptable
13. (A) demonstrate (B) expose (C) lie down (D) externalize
14. (A) seawater (B) cuisine (C) fashion (D) climates
15. (A) strict (B) sincere (C) liberal (D) general

There are many different forms of potential economic stimulus and they work in different ways. Tax cuts for individuals generally encourage short-term spending. Tax cuts for companies encourage both spending and investment. Expenditures on public works create contracts for firms and provide short- to medium-term 16. Investments in research and development take a longer-term approach 17 the theory 18 in the future (and thus provide jobs) if they have the money to make intelligent investments in their operations

now. Finally, some forms of economic stimulus seek to make investments that will pay off in the long run 19 for everybody. An example is investing in the U.S. energy grid. 20, a one-time outlay could make energy costs for both individuals and businesses less expensive for decades to come.

16. (A) opportunities of employment (B) employment opportunities
 (C) employing opportunities (D) employment in opportunities
17. (A) under (B) in (C) of (D) on
18. (A) business is going to be thrive (B) which business is going to be thrive
 (C) that business will thrive (D) business thrives
19. (A) with cheaper consumption (B) in making cheaper consumption
 (C) by consuming cheaply (D) by making consumption cheaper
20. (A) Theoretic concern (B) Theoretical (C) Being theoretic (D) Theoretically

Part III. Reading Comprehension. In this part, you will read several passages. Each one is followed by one question or a number of questions. Question 21 – 40, you should choose the ONE best answer to each question. 2 points Each.

Question 21-25

The importance of strength in many sports is undeniable. It is so important that many university and professional teams now hire a specialized coach who only attends to the development of strength in athletes. It is interesting to note that no such specialist is hired to attend to the other components of physical fitness. We have yet to see a cardiovascular coach, a coach who attends to developing fitness of the heart and blood vessels, hired by universities or professional teams. This situation raises the question of the relative importance of each of these two components, strength training and cardiovascular training, to the other. Does the strength coach develop the cardiovascular system by prescribing a program to increase muscle fiber?

It is theoretically possible to design a weight-lifting program in which the resistance is so low and the repetitions so numerous that it provides the cardiovascular benefits of a running program. Therefore, if you view weights as a way to overload muscles, you can imagine a continuum of programs that emphasize cardiovascular benefits on the one extreme and strength on the other. The practical truth of the matter is that most coaches are primarily concerned with pure strength. Therefore, the athlete has to work on the end of the weight-overload continuum that promotes little, if any, cardiovascular benefit. In fact, one study has found that a high-intensity strength program reduced mitochondrial density (density of the cellular structures that produce energy in the muscle fiber) per unit of muscle. The athletes increased muscle mass, so they did not eliminate mitochondria presumably, but the fact remains that the oxidative capacity, the ability to use oxygen in the synthesis of energy, was not promoted. Oxidative capacity would usually improve in programs that stress cardiovascular conditioning. Neither increased blood flow nor increased mitochondrial density (both indicators of oxygen extraction) occur with strength training.

Obviously, there is nothing wrong with training athletes to gain strength, but in most strength programs cardiovascular improvements are not made. Therefore, for athletes, who require both strength and cardiovascular conditioning, both components must be trained independently.

21. What is the main point of the passage?
- (A) College and professional teams do not need specialized coaches.
 (B) Strength training should be replaced by cardiovascular training.
 (C) Cardiovascular training is more difficult than strength training.
 (D) Athletes need both strength and cardiovascular training.

22. Under which of the following conditions can a weight-lifting program provide cardiovascular benefits?
- (A) When the weights are very heavy
 - (B) When the weights are lifted very slowly
 - (C) When lifting a heavy weight overtires the muscles
 - (D) When light weights are lifted a large number of times
23. Why does the author mention running?
- (A) To give an example of the benefits of strength training
 - (B) To demonstrate what a typical weight program includes
 - (C) To give an example of an activity that provides cardiovascular conditioning
 - (D) To demonstrate the importance of oxygen extraction
24. Which of the following is an important direct result of cardiovascular training?
- (A) Improved oxidative capacity
 - (B) Increased muscle fiber
 - (C) Decreased mitochondrial density
 - (D) Increased body weight
25. Which of the following policies would the author be most likely to support?
- (A) Sports teams should increase their strength-training programs.
 - (B) All athletes should be able to choose the kinds of training they prefer.
 - (C) Sports teams should provide improved cardiovascular training.
 - (D) All athletes should avoid strength training in order to avoid injury.

Question 26-31

It is in search of adequate food supplies that cetaceans, marine mammals such as whales and dolphins, travel the oceans. They live in a world that is largely hidden from humans. Yet their range is three times as large as ours, since oceans occupy about three-quarters of the Earth's surface. They travel through well-marked ocean zones, **each** with its own characteristic marine life. They glide through the water, periodically rising to the surface to breathe. The sea may be raging but cetaceans are untroubled by the greatest storms; indeed they are more at home in rough than in calm seas.

Indirectly, however, their life is greatly influenced by wind. The eastward rotation of the Earth produces the **prevailing** trade winds, blowing east to west at the equator. These winds drag the surface waters and all they contain in a westerly direction. Warmed by its passage through the tropics, the wind-driven water is deflected against the westward continents, turning southwest in the Southern Hemisphere and northwest in the Northern Hemisphere.

In the Southern Hemisphere, the warm flow of tropical water under the west-going equatorial trade wind produces a genial climate along the eastern shores of Australia, South America, and South Africa. But there is open ocean to the south. Here the current is driven eastward unimpeded by land before the almost incessant westerly gales of this zone. The huge mass of water moves fast, chilled by water from the Antarctic Region, but **laden** with masses of plankton.

This cold, swift current is **split** when it strikes the southwestern extremities of the three southern continents. The northern portion of this water is diverted by the southwest coast of South America to sweep northward toward the equator. Known as the Humboldt Current, this current is rich in plankton on which cetaceans feed. Part of this same cool eastward-flowing current, enriched with water from higher latitudes, is similarly diverted north along the southwest coast of South Africa. This is the Benguela Current, where many cetaceans come to feed.

26. The passage answers which of the following questions?
- (A) What is the main difference between cetaceans and other marine life?

- (B) How far do most cetaceans travel in a year?
(C) How often do cetaceans need to breathe?
(D) What winds and ocean currents affect cetaceans?
27. The word **each** in paragraph 1 refers to a
(A) cetacean (B) surface (C) range (D) zone
28. The word **prevailing** in the passage is closest in meaning to
(A) arctic (B) blowing (C) dominant (D) energetic
29. The word **laden** in paragraph 3 is closest in meaning to
(A) balanced (B) filled (C) touched (D) wrapped
30. The word **split** in paragraph 4 is closest in meaning to
(A) stopped (B) divided (C) opened (D) surrounded
31. What do paragraphs 3 and 4 primarily discuss?
(A) The water currents in the Southern Hemisphere
(B) The trade winds in the Southern Hemisphere
(C) The three continents in the Southern Hemisphere
(D) The large area of open ocean in the Southern Hemisphere.

Question 32-36

Doris Lessing received her Nobel Prize in 2007. Her novel *The Golden Notebook* is considered a feminist classic by some scholars, but notably not by the author herself, who later wrote that its theme of mental breakdowns as a means of healing and freeing one's self from illusions had been overlooked by critics. She also regretted that critics failed to appreciate the exceptional structure of the novel. As she explains in *Walking in the Shade*, Lessing modeled Molly, to an extent, on her good friend Joan Rodker, the daughter of the author and publisher John Rodker.

Lessing does not like the idea of being pigeon-holed as a feminist author. When asked why, she replies:

What the feminists want of me is something they haven't examined because it comes from religion. They want me to bear witness. What they would really like me to say is, 'Ha, sisters, I stand with you side by side in your struggle toward the golden dawn where all those beastly men are no more.' Do they really want people to make oversimplified statements about men and women? In fact, they do. I've come with great regret to this conclusion.

- Doris Lessing, *The New York Times*, 25 July, 1982[8]

32. Doris Lessing is a Nobel Prize winner in
(A) Feminism. (B) Literature. (C) Sociology. (D) Peace.
33. According to Doris, what feminists want from her is
(A) exceptional structure. (B) fighting against men.
(C) creative ideas about men and women. (D) healing power from battles between men and women.
34. Doris Lessing does not particularly like the idea of being **pigeon-holed** as a feminist; pigeon-holed here means
(A) categorized (B) wholesale (C) viewed (D) completed
35. Which of the following statements is **FALSE**?
(A) Critics often neglect the theme of mental breakdowns as a self-freeing power.
(B) She models a heroine on her friend in one of her books.
(C) Her book *The Golden Book* is particularly considered a feminist one by Lessing.
(D) Lessing thinks critics understand her work very well.
36. Generally speaking, Lessing's attitude towards being considered a feminist is
(A) accepting (B) disappointed (C) welcomed (D) patient

Question 37-40

In recent years, many Taiwanese have won awards at international film festivals. However, many theater owners don't consider even prize-winning Taiwanese films to have much commercial potential in their home market. Their viewpoint is generally confirmed by the largely empty seats at showings of locally produced movies. The market share for local films is only about two percent, while more than 95 percent of the market is taken by Hollywood blockbusters. The dominance of American-made films in Taiwan has continued for the past ten years, but the government is proposing some solutions. It is hoped that some legal changes and few promotional projects will help Taiwan's struggling film industry.

One proposal is to give individuals or companies a tax deduction for money spent to produce a film. The idea is that the tax deduction would encourage investments in new films. There are also plans to provide financial support not only for film production, but also for marketing.

37. Which of the following could be a title for this passage?

- (A) The international Movie Industry and Taiwanese Films
- (B) Trends in Taiwanese Moviegoing Habits
- (C) Prize-Winning Taiwanese Films
- (D) A Helping Hand for the Taiwanese Film Industry

38. Which of the following statements is true about Taiwanese films in general?

- (A) They have been commercially successful both locally and abroad.
- (B) Most production of local films has been moved to Hollywood.
- (C) They have won many international awards, but little response from local audiences.
- (D) They have found little success anywhere in the world.

39. What does the passage imply is the main reason that Taiwanese films do not have a large local audience?

- (A) Taiwanese audiences dislike prize-winning films, thinking them "arty."
- (B) American films are superior in quality.
- (C) The Taiwanese film industry is not supported well enough financially.
- (D) Ticket prices for local films are too high.

40. How is the government attempting to help the local film industry?

- (A) By limiting the number of foreign films that local theater owners can show.
- (B) By encourage lower ticket prices for local films.
- (C) By establishing schools for training local filmmaking talent.
- (D) By helping to make creating and promoting local films more affordable.

Part IV. Essay. 20 points.

Do you think that technology alienate people from one another? Why or Why not? Please write a well-structured essay in 150 to 200 words discussing your opinions.

1. Please provide the evidences of somatic genetic changes in human cancers (15%)?
2. Describe growth characteristics between tumor cells and normal cells (20%)?
3. Describe the characters of oncogene and tumor suppressor gene, respectively, and the different mechanism of loss of cell control between the oncogene and tumor suppressor gene (20%)?
4. Describe the concept of cancer pharmacogenomics (15%)?
5. Please list 3 (oncogene or tumor suppressor gene) and its related human cancers (15%), only 3 kinds of human cancers required?
6. Describe the genetic model for human colorectal tumorigenesis (15%)?

1. 幽門螺旋桿菌是引起消化性潰瘍的重要原因但是越來越多研究指出幽門螺旋桿菌與食道疾病也有關聯請舉例並說明
2. 發炎性腸道疾病(inflammatory bowel disease, IBD)是一種大小腸過度發炎造成的疾病但是最近研究顯示寄生蟲對 IBD 患者可能有保護作用請敘述可能的機轉
3. 目前已知 COX-II inhibitor 可預防大腸息肉發生請試述 COX-II inhibitor 對大腸息肉致病過程可能的影響
4. 請試述 Imatinib 治療胃腸道間質瘤(gastrointestinal stromal tumor, GIST)的機轉
5. 請試述慢性 C 型肝炎與代謝性症候群間的關連
6. 請試述 Ito cells 與肝硬化的關連
7. 請試述 IL-1beta 的基因多型性對胃酸分泌的影響
8. 請試述大腸直腸癌基因篩檢常見的基因及其可能的作用

一、單選題(選擇最正確的答案)每題 3 分, 請將答案寫在答案卷上 (60 分)

1. 在台灣曾發現有西南沿海地區人們的手、腳很多皮膚癌和壞疽的情況, 稱之為烏腳病, 至目前為止已有很多研究, 以下何者為非?
 - (1) 砷可能不是直接的致癌物, 但在很多病例中, 很多內臟器官的次發性癌 (Secondary Carcinoma), 是由於對砷暴露 (包括食入、注射或吸入) 引起原發性皮膚癌轉移的結果
 - (2) 可能是自來水中含砷而引起。
 - (3) 在動物身上發現砷會和 DNA 聚合, 因而會影響 DNA 的修護。
 - (4) 砷能引起角化病, 特別是手掌和腳板。

2. 鉛暴露的生物指標有: 血中鉛、尿中鉛、血中 ZPP (zinc protoporphyrin)、骨鉛, 以下何者為是?
 - (1) 最常用的是尿中鉛、代表累積暴露量的是血中 ZPP。
 - (2) 最常用的是血中鉛、代表累積暴露量的是骨鉛。
 - (3) 最常用的是骨鉛、代表累積暴露量的是血中 ZPP。
 - (4) 最常用的是血中 ZPP、代表累積暴露量的是骨鉛。

3. 以下非職業性聽力損失主要認定基準:
 - (1) 有職業性噪音作業環境之暴露史及合理的聽力損失發病之時序性。
 - (2) 聽力損失必須是感覺性神經性病變 (Sensorineural Hearing Loss) 且純音聽力檢查圖 (Pure Tone Audiogram) 具有特色性的「C5 dip」(凹陷) 或其後續變化。
 - (3) 無基線資料者, 其純音聽力檢查結果, 採用六分處, 於 500Hz, 1000Hz, 2000Hz 及 4000Hz, 聽力損失達 30 分貝 或以上者。
 - (4) 兩耳之聽力損失程度具不對稱性, 即二側聽力損失之差距在 15 分貝 (含) 以上。

4. 我國主管勞工安全的最高政府主管單位為 (1) 行政院勞委會 (2) 行政院勞工局 (3) 行政院經濟部 (4) 行政院衛生署。

5. 高醫職業病科曾經報導電信員工長期暴露於硫酸氣會得 (1) 子宮頸癌 (2) 鼻咽癌 (3) 腎病變 (4) 腕垂症。

6. 鉛進入人體大部分存於何處? (1) 皮膚 (2) 指甲 (3) 骨中 (4) 心臟。

7. 我國勞工安全衛生法規, 事業單位發生重大職業災害時, 雇主應於 (1) 24 小時 (2) 30 小時 (3) 40 小時 (4) 48 小時 內報告檢查機構。

8. 氯乙烯單體暴露工人可能發生那一種癌症? (1)肺癌; (2)腦瘤; (3)肝血管肉瘤; (4)皮膚癌

9. 潛水夫病是指吸入高壓的混合氣體，致使 (1) 氮氣; (2) 氧氣; (3) 一氧化碳; (4) 苯蒸氣，溶解在身體的血液，若急速上升會使該氣體在身體產生氣泡而導致症狀。

10. 下列何者不是? (1) 鉛會引起貧血; (2) 噪音造成鼻中膈穿孔; (3) 四氯化碳會引起化學性肝炎; (4) 錳煙會引起巴金森症候群。

11. In Japan, Minamata Bay disease was caused by industrial polluted fishes of (1) lead; (2) arsenic; (3) chromium; (4) methyl mercury waste dumping.

12. 我國全民健康保險之預防保健服務不包括：

- (1) 成人預防保健服務 (2) 預防職業病之健康檢查
(3) 孕婦產前檢查 (4) 兒童預防保健服務

13. 某種 Occupational disease 使用 One marker 的篩選方法研究結果如下：

| 篩檢 Marker | Occupational disease | |
|--------------|----------------------|---|
| | 有 | 無 |
| 陽性 | a | C |
| 陰性 | b | D |

請問：該篩選方法的精確度 (specificity) 為何？

- (1) $a/(a+b)$ (2) $b/(a+b)$ (3) $d/(c+d)$ (4) $c/(c+d)$

14. 下列何者在研究職業流行病學上不屬於病例對照研究設計 (case-control study design) 的特徵？

- (1) 相對於其他分析性流行病學研究設計，它相對較經濟
(2) 是用回溯性的方法研究病因，因此常有偏差
(3) 可以直接計算暴露組與對照組的疾病發生率
(4) 研究結果可以用來計算可歸因危險性百分比

15. 某職業病篩檢方法之敏感度 (sensitivity) 為 80%、精確度 (specificity) 為 80%，現以該方法篩選 1000 人，結果如下：

| 篩檢結果 | 實際罹職業病情形 | |
|------|----------|-----|
| | 有疾病 | 無疾病 |
| 陽性 | A | B |
| 陰性 | C | D |
| 合計 | 100 | 900 |

以下何者正確？

- (1) A=80 (2) C=80 (3) D=80 (4) B=720

16. 國民健康局想進行世代研究 (cohort study)，探討運動是否可減少心臟病的危險。這個世代必須是建立在：

- (1) 已罹患心臟病的人 (2) 沒有罹患心臟病的人
(3) 已經有運動習慣的人 (4) 沒有運動習慣的人

17. 某研究想探討飲水中三氯甲烷濃度與直腸癌的相關性。研究者首先分析 2000 年台灣地區各縣市的直腸癌發生率，並利用水質監測紀錄得知各縣市自來水供水之三氯甲烷濃度，以此兩種資料，研究者進行相關分析。此種研究法稱為：

- (1) 橫斷式研究 (2) 生態研究 (3) 世代研究 (4) 病例對照研究

18. 下列各種現象經常是病例對照研究結果產生偏差 (bias) 的來源？

- (1) 健康工人效應 (2) 研究樣本失去追蹤
(3) 研究對象通常是自願者 (4) 研究對象無法正確回憶過去的暴露情形

19. 比較工作前後 FEV1 (用力呼吸第一秒量) 時，用何者統計方法最好？

- (1) Chi-Square test (2) Student t-test (3) Paired t-test (4) McNemar test

20. 若在勞工健康檢查時蒐集勞工的目前工作項目，同時亦抽血檢查肝功能，以此判定工作暴露與肝功能異常的相關性。此種研究屬於：

- (1) 橫斷面研究 (2) 生態學研究 (3) 世代研究 (4) 病例對照研究

二、簡答題 (40 分) 答案寫在答卷卷上

A. Please use one example to explain “Confounding effect” in the study of occupational health or medicine. (5 分)

B.

1. What is “Healthy worker effect”? (5 分)

2. Design one study that the “Healthy worker effect” can occur? (10 分)

C.

How do you diagnose “Work-related diseases”? Based on what kinds of clinical criteriae? Please use one example to answer this question. (20 分)