

Part I. Question 1 to 10, please choose the answer closest to the underlined word or phrase. Question 11 to 15, please choose the answer that best completes the sentence. One Answer Only. 2 points.

1. Some of the potential dangers to cows treated with synthetic bovine growth hormone were brought into light through the effort of some scientist.
(A) related (B) possible (C) certain (D) obvious
2. As more U.S workers spend their days at keyboards, hand injuries and lawsuits are multiplying.
(A) increasing (B) minimizing (C) boundary-crossing (D) profit-making
3. There are several bodies that match volunteers with voluntary groups, including the National Volunteering Centre.
(A) organizations (B) remains (C) people (D) motivations
4. Piaget believed that we go through four stages in understanding the world. Each of the stages is age-related and consists of distinct ways of thinking.
(A) new (B) simple (C) different (D) exact
5. Some people think that spoken language is transient but writing tends to last because of its physical medium (characters on some surface).
(A) unimportant (B) temporary (C) interesting (D) clear
6. But what most prevents women from reaching the boardroom, say bosses and headhunters, is lack of hands-on experience of a firm's core business.
(A) significant (B) available (C) tested (D) practical
7. Manufactured in the tranquil New England town of Concord, New Hampshire, the famous Concord Coach came to symbolize the Wild West.
(A) peaceful (B) bustling (C) industrial (D) tiny
8. With oil prices shooting up, the demand for big cars is dwindling. Now compact cars are on great demand.
(A) depressing (B) surpassing (C) decreasing (D) swirling
9. All of this she conferred on me without ever setting foot in the kitchen of her house.
(A) leaving (B) dressing (C) entering (D) preparing
10. In choosing your career, you should follow your heart, but you also need to be rational.
(A) making decisions based on intelligent thinking (B) making decisions using strong emotion of feeling
(C) making decisions because of relationships (D) making decision because of profits
11. _____ abolishing death penalty is a global trend, the public is so polarized over the issue that it requires more discussion.
(A) Because (B) Whereas (C) Although (D) In addition to
12. Women now often work areas _____ medicine, business management and higher education, which would not have been possible 100 years ago.
(A) regardless of (B) in virtue of (C) due to (D) such as
13. Both the National Cancer Institute and the World Health Organization say there isn't evidence to support the assertion that cell phones are a _____ threat.
(A) health public (B) healthy public (C) public-health (D) publically health
14. _____ on barren slopes can help prevent erosion.
(A) Planting trees (B) For trees to be planted (C) In order to plant trees (D) Trees are planted
15. Almost four in five people around the world believe that _____, a poll for the BBC World Service suggests.
(A) access the Internet is a fundamental right (B) that access to the Internet is a fundamental right
(C) fundamental right accessing the Internet is (D) the fundamental right is access the Internet

II. Question 16 to 25, please choose the best answer to fill each of the numbered blanks in the passages. 2 points each.

People communicate in many different ways and yawning is one important means of 16 communication. It gives many different 17 to people and everyone yawns. Some birds, reptiles, fish and most mammals also yawn. However, the reason why we do it is still a mystery. There is also very little research available on yawning as for most people, it is not a problematic 18. Here are a few things that are known about yawns: 1.) The 19 duration of a yawn is about six seconds; 2.) in humans, the 20 yawn happens about eleven weeks after conception; 3.) Yawns become contagious to people between the first and second years of life.

16. (A) audio (B) friendly (C) non-verbal (D) scenario
 17. (A) messages (B) funs (C) challenges (D) experiments
 18. (A) resistance (B) repeat (C) reflex (D) rejection
 19. (A) critical (B) analytical (C) terminal (D) average
 20. (A) most difficult (B) earliest (C) most fundamental (D) experiential

Culture shock can be an excellent lesson 21 human differences. The reason culture shock occurs is that we are not prepared for these differences. 22 the way we are taught in our culture, we are all ethnocentric. This term comes from the Greek root ethnos, 23 a people or group. Thus, it refers to 24 our outlook or world view is centered on our own way of life. Ethnocentrism is the belief that one's own patterns of behavior are the best: the most natural, beautiful, right, or important. Therefore, other people, 25 that they live differently, live by standards that are inhuman, irrational, unnatural, or wrong.

21. (A) on relative values and understanding (B) in relative values and in understanding
 (C) about relating values and on understanding (D) by means of relative values and understanding
 22. (A) Because of (B) Because (C) In the event of (D) In spite of
 23. (A) it means (B) it is meaning (C) meaning (D) by meaning
 24. (A) that the fact (B) the fact that (C) the fact (D) the fact that is
 25. (A) to the extend (B) by and large (C) more or less (D) drawing a line

III. Reading Comprehension. In this part, you will read several passages. Each one is followed by a number of questions. Question 26 to 40, you should choose the ONE best answer to each question. 2 points each.

Dariusz Leszczynski, a research professor at Finland's Radiation and Nuclear Safety Authority in Helsinki, has done studies indicating that radio frequency radiation may create a stress reaction in the cells that line blood vessels, leading to a dangerous breach in the blood-brain barrier. "Mobile-phone radiation may be able to indirectly hurt cells, perhaps by interfering with their ability to repair normal DNA damage," he says. "Given the scientific uncertainty, it's premature to say the use of cell phones is safe."

If radio frequency radiation increases the chances of developing brain cancer, it should show up in long-term studies of cell-phone users. But many epidemiological studies have found no clear connection, including a 2007 Danish Cancer Society study of 421,000 cell-phone users, which led many in the media to conclude that mobiles are harmless. To date, "peer-reviewed scientific evidence has overwhelmingly indicated that wireless

devices do not pose a risk," says John Walls, a spokesman for CTIA, a global wireless association.

26. According to Prof. Dariusz Leszczynski,

- (A) whether or not the use of cell phones is safe is still uncertain.
- (B) it is proved that cell phone would impair normal DNA.
- (C) Using cell phones will block blood vessels.
- (D) The research on cell phones is not reliable.

27. The passage following these two passages might be about

- (A) the autobiography of Dariusz Leszczynski.
- (B) problems with many of these studies.
- (C) the development of brain cancer.
- (D) peer review of cell phones.

While fats have lately acquired a bad image, one should not forget how essential they are. Fats provide the body's best means of storing energy, a far more efficient energy sources than either carbohydrates or proteins. They act as insulation against cold, as cushioning for the internal organs, and as lubricants. Without fats, energy would have no way to utilize fat-soluble vitamins. Furthermore, some fats contain fatty acids that contain necessary growth factors and help with the digestion of other food.

An important consideration of fat intake is the ratio of saturated fats to unsaturated fats. Saturated fats, which are derived from dairy products, animal fats, and tropical oils, increase amount of cholesterol in the blood. Cholesterol may lead to coronary heart disease by building up in the arteries of the heart. However, unsaturated fats, derived from vegetable oils, tend to lower serum cholesterol if taken in a proportion twice that of saturated fats.

The consumption of a variety of fats is necessary, but the intake of too much fat may lead to a variety of health problems. Excessive intake of fats, like all nutritional excesses, is to be avoided.

28. Comparing with carbohydrates or proteins, fats

- (A) store food more efficiently.
- (B) deserve their bad image.
- (C) consume more oils.
- (D) provide more fluids.

Which of the followings is the main idea of

29. The main idea of the third paragraph is that

- (A) people are eating less and less fat today.
- (B) fats should be eliminated.
- (C) excessive consumption of fats may be dangerous to one's health.
- (D) fats taken in the proper proportion may reduce serum cholesterol.

30. With which of the following is the whole passage primarily concerned?

- (A) The role of fats in human health
- (B) The dangers of cholesterol
- (C) The benefits of fats in the diet
- (D) The importance of good nutrition

Gender Equity

(1) In the past decade, increasing attention has been paid to the issue of gender equity in the science, technology, engineering, and mathematics (STEM) fields. Research publications, including the American Association of University Women Educational Foundation's Tech Savvy (2000) and Women at Work (2003), have documented the troubling shortage of girls and women preparing to work in these fields. In response to this "**shrinking pipeline**" of girls and women in STEM, a wide array of programs and strategies has been promoted and funded by governmental and nongovernmental organizations.

(2) The AAUW Educational Foundation and the National Science Foundation are among the top supporters of gender equity projects in the STEM fields. In the last decade alone, these two foundations have

invested nearly \$90 million to fund more than 400 projects specifically aimed at increasing the participation of girls and women in STEM fields. This body of projects presented a unique opportunity to explore the nature of gender equity intervention projects in STEM. Until now, no comparable survey of gender equity intervention projects in STEM has been done.

(3) The research for this report, led by Yasmin Kafai and a team of researchers at the University of California, Los Angeles, was guided by several overarching questions: What types of projects have been funded within and across the various STEM disciplines? Are there areas where we have concentrated our efforts, and areas we have overlooked? What patterns emerge among the project types and disciplines?

(4) The findings document impressive efforts in preparing girls and women for science, technology, engineering, and mathematics studies and careers and demonstrate a rich and diverse body of gender equity intervention projects within all STEM disciplines. About two-thirds of the projects involved extracurricular informal learning activities such as museum visits and field trips. Equally important were mentoring activities in many forms, ranging from traditional one-to-one to large-scale online versions, and professional development activities, such as course taking and network building, that were successfully integrated into projects.

(5) At the same time, the findings reveal some troubling trends. Many projects focused predominantly on career advice without providing access to necessary skill and content development. A majority of projects occurred outside the school curriculum. While such extracurricular projects can be effective and valuable, the overall lack of integration into the school curriculum suggests that gender equity remains on the margins of teaching and learning in the STEM fields. Finally, an absence of data on participant demographics and a lack of project evaluation make it difficult to determine who is being served and if and how project outcomes are being measured.

31. What does the phrase "shrinking pipeline" in paragraph refer to?

- (A) the shortage of oil supply (B) the shortage of labor supply
(C) the shortage of training programs (D) an issue that is getting smaller

32. Which of the sentences below best express the essential information in the highlighted sentence in the passage 2? (Incorrect choices change the meaning in important ways or leave out essential information.)

- (A) These projects allowed us to study the differences between men and women employed in STEM jobs.
(B) We were able to intervene when women STEM workers were being treated unfairly.
(C) Studying these projects helped to create more gender equity intervention projects.
(D) STEM jobs were able to be studied by exploring nature.

33. In paragraph 3, "Are there areas where we have concentrated our efforts, and areas we have overlooked?"

In this sentence, "we" refers to

- (A) the author and his/her coworkers. (B) people involved in creating gender equity projects.
(C) people in the STEM disciplines. (D) Yasmin Kafai and his team.

34. According to paragraph 4, what is one positive finding of this research?

- (A) the STEM field is rich and diverse (B) many projects involved mentoring opportunities
(C) girls and women are being prepared for STEM jobs (D) the quality of the questions asked

35. According to paragraph 5, what is one negative trend discovered through this research?

- (A) access to unnecessary content (B) extracurricular projects were common
(C) evaluation of the projects was too specific (D) focus on career advice

Chili peppers are decidedly an international phenomenon, spicing up regional dishes from Thailand to North Africa. In Thailand Confidential, this week's Globalist Bookshelf selection, Jerry Hopkins gives insight

to the culture and history surrounding this fiery fruit (yes, technically a fruit) and highlights how it may be one of the world's best medical miracles.

In Thailand — where restaurants rate their dishes by placing one, two, three, and sometimes four little red chilis on the menu next to the dishes' names to alert diners — I am tolerated. Barely.

A longtime friend, who is a Thai chef, used to bring home food purchased at street stalls and as she placed this on the table, she would point to one container and say, "Mine," then to another, saying, "Yours." As if to say, "Poor dear."

Thailand is not the birthplace of the Capsicum, or chili pepper; it only acts as if it is. In fact, the chili was imported, along with much else in the national diet. However, in Thailand the **per capital consumption** of the small, fiery fruit is surely as high if not higher than it is anywhere else. And it is in the use of unprocessed, fresh, ripe chilis where Thailand rings all the loudest bells.

The truth is that chili is an international phenomenon. There is a bimonthly magazine published in the United States, Chili Pepper (there is no agreement on the spelling), and a wide variety of products is available, including pepper-shaped wind chimes, bells, and strings of Christmas tree lights. There is even a Hot Sauce Club of America; members receive two new hot sauces and a newsletter every month. There is even a popular American rock and roll band that calls itself the Red Hot Chili Peppers. Yes, the band is hot.

36. From these passages, we learn that the author

- (A) enjoys chili peppers everywhere.
- (B) does not really like chili peppers.
- (C) likes to have chili peppers to go with some certain kind of food.
- (D) like to go to restaurant famous for chili peppers.

37. The best title for these passages is

- (A) Thailand and Chili peppers. (B) Chili Peppers and Spicy Dishes.
- (C) Different Tastes all over the World. (D) Chili Peppers and Globalization.

38. Based on the passages, which of the following is NOT TRUE?

- (A) That Thailand uses unprocessed, fresh, ripe chili peppers has started the popularity of chili peppers.
- (B) Thailand exports a lot of chili peppers.
- (C) Chili peppers are a kind of fruit.
- (D) Thai food is normally quite spicy.

39. What does **per capital consumption** mean?

- (A) amount consumed per person within a specific population.
- (B) capital population and its consumption.
- (C) capital with that the government provides each person for food consumption.
- (D) capital that each person can get for their daily food consumption.

40. What is the main idea of the last paragraph?

- (A) Chili peppers are very popular in the United States.
- (B) The use of chili peppers in the United States is being influenced by Thailand.
- (C) Chili peppers are made into different toys.
- (D) Chilli peppers have made a rock band very hot.

IV. Essay. 20 points.

Please write a **well-structured** essay on **how you can prepare yourself for living in a diverse and more global society** in 150 to 200 words discussing your opinions.

- 一、 世界衛生組織 (WHO) 在 2001 年提出 International Classification of Functioning, Disability, and Health (ICF) 架構，請敘述：(1) ICF 應用於兒童及青少年之架構內容 (ICF-CY)；(2) ICF 應用於老人之架構內容；(3) ICF 應用於上述兩個族群 (兒童及青少年、老人) 之倫理考量。25%
- 二、 (1) 何謂參考架構 (Frames of Reference)？並請詳細說明職能治療師常用的五種參考架構之：(2) 主要論述；(3) 評估及介入方式；(4) 臨床應用之舉例說明。25%
- 三、 請說明針對 Occupational Performance Areas 評估之：(1) objectives；(2) content；(3) parameters；(4) methods。15%
- 四、 職能治療需要進行以證據為導向之研究來證實其療效，而在研究設計與資料分析時需考慮不同的心理計量特質 (psychometric properties)，請詳細說明下列心理計量名詞的內涵及意義：(1) reliability；(2) validity；(3) sensitivity/specificity；(4) effect size；(5) random controlled trial。15%
- 五、 請說明兒童與成人認知缺損 (cognitive deficits) 之：(1) 定義，(2) 評估方式，包括各舉出一項標準化評估工具並說明之，(3) 職能治療介入之原則及方式。20%

Journal Title: Active Finger Extension A Simple Movement Predicting Recovery of Arm Function in Patients With Acute Stroke (*Stroke*. 2007;38:1088)

Authors: Nicola Smania, MD; Stefano Paolucci, MD; Michele Tinazzi, MD; Anna Borghero, MD; Paolo Manganotti, MD; Antonio Fiaschi, MD; Giuseppe Moretto, MD; Paolo Bovi, MD; Mattia Gambarin, MD

Recovery of function of the paretic arm is one of the main concerns of patients after stroke. To date only a few studies have focused on simple clinical bedside tests predicting functional recovery in stroke. Katrak et al showed that preservation of proximal (shoulder) movements after stroke is an early predictor of arm recovery. Studies on neurophysiological control of distal movements in stroke support the hypothesis that active finger extension (AFE) could be a predictor of paretic arm recovery. The aim of this study was to clarify the role of 4 clinical indexes—AFE, shoulder abduction (SA), shoulder shrug (SS) and the hand movement scale (HMS)—as early predictors of recovery of arm function in stroke patients.

Materials and Methods

We prospectively studied 48 patients (mean age: 74.39 ± 9.33 ; males 45.83%, 50% with left brain stroke) out of 137 patients consecutively admitted from October 2003 to August 2004 to the Neurology Division of the Azienda Ospedaliero-Universitaria of Verona, Italy, for their first ischemic stroke. Eighty-nine were excluded according to the following criteria: hemorrhagic stroke; unilateral neglect; limb apraxia; impaired verbal comprehension; other neurological or psychiatric conditions; orthopaedic diseases and/or pain limiting movements of the affected arm. During the study, we observed 11 drop-outs, including 2 deaths. Patients were evaluated on days 7, 14, 90 and 180 after stroke. The evaluation protocol included 4 potential predictors of arm recovery (independent variables). AFE: the patient was asked to actively extend all affected fingers except the first simultaneously, with scores ranging from 0 (absence of muscle contraction) to 5 (normal muscle power). SS: the patient was required to shrug the affected shoulder (score: 0 if unable, 1 if able). SA: the score was 0 if the active range was $<30^\circ$ and 1 if $>30^\circ$. HMS: this is a 6-point scale evaluating the ability to perform hand movements of different degrees of difficulty. We used only 3 validated tests as outcome measures (dependent variables): the Nine Hole Peg Test (NHPT) (score: time used to pick up and insert 9 pegs in 9 holes in a wooden board; maximum time allowed: 2 minutes), the Fugl-Meyer arm subtest (FugM) (score: 0 to 66), and the Motricity Index arm subtest (MI) (score: 0 to 99). Data were analyzed according to an intention-to-treat model. Forward stepwise multiple linear regression was done to clarify the prognostic role of the AFE, SS, SA and HMS (all performed 7 days after stroke) on NHPT, FugM and MI at different times poststroke (14,

30, 90 and 180 days). To quantify the probability of a good outcome, we performed logistic regression (forward stepwise, Wald test) using the top MI score (99) as a dependent variable at each step. Independent variables—all dichotomous—were: high basal AFE score (coded as 1=>3 and 0= \leq 3), SS score, SA score, high basal HMS score (coded as 1=>3 and 0= \leq 3). In order to take into account multiple inquires we set the significance level at $P<0.01$. Data were analyzed using the SPSS statistical package, 11.0 version.

TABLE 1. Multiple Regression Analysis to Test the Value of AFE, SS, SA and HMS as Predictors of Recovery of Arm Function

Independent Variables, 7 days	Dependent Variables											
	NHPT				FugM (arm)				MI (arm)			
	14 days	30 days	90 days	180 days	14 days	30 days	90 days	180 days	14 days	30 days	90 days	180 days
AFE												
β	-0.623	-0.695	-0.661	-0.428	0.667	0.637	0.590	0.567	0.515	0.394	0.382	0.620
P	<0.000	<0.000	0.014*	0.012*	<0.000	<0.000	<0.000	<0.000	<0.000	0.006	0.018*	<0.000
SS												
β	-	-	-	-	-	-	-	-	-	0.309	0.308	0.267
P	-	-	-	-	-	-	-	-	-	0.001	0.003	0.018*
SA												
β	-	-	-	-	0.341	0.326	0.371	0.376	0.208	-	-	-
P	-	-	-	-	<0.000	0.001	<0.000	<0.000	0.020*	-	-	-
HMS												
β	-	-	-	-0.390	-	-	-	-	0.278	0.319	0.290	-
P	-	-	-	0.021*	-	-	-	-	0.021*	0.012*	0.044*	-
Adjusted r^2	0.375	0.471	0.424	0.592	0.842	0.766	0.753	0.722	0.796	0.773	0.704	0.635

- indicates not significant; *, tending towards significance.

Results

As shown in Table 1, in the multiple regression analysis the AFE test was the only predictor that was associated with all 3 types of dependent variable (NHPT, FugM and MI), and was the only variable associated with performance in the NHPT (at 14 and 30 days). SS was mainly associated with MI, and SA with FugM. As shown in Table 2, in the logistic regression analysis, patients with a basal AFE score >3 had a 12- to 18-fold greater probability than the other patients of reaching the maximum MI score. An HMS score >3 was associated with a high probability of full recovery on MI, but only in a chronic phase (evaluation on day 180). SA and SS did not enter any of the models.

TABLE 2. Results of Logistic Regression Analysis With Maximum MI Score as Dependent Variable

	Dependent Variable: MI Top Score (99)			
	14 days	30 days	90 days	180 days
Independent variables, 7 days	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
AFE >3	19.50 3.58–106.08	15.48 3.42–70.02	14.67 3.55–60.65	10.00 1.49–67.02
HMS >3	NE	NE	NE	6.25 1.14–34.31
Predictive accuracy	79.2%	79.2%	79.1%	85.4%
Significance χ^2	16.20	16.14	17.10	26.34
<i>P</i>	<0.001	<0.001	<0.001	<0.001

NE indicates not entered.

Discussion

The present study shows that it is possible to predict recovery of function of the affected arm after stroke by means of a simple bedside clinical evaluation. In particular, AFE proved to be a strong early predictor of short-, medium- and long-term poststroke recovery, being significantly associated with all the dependent measures studied. Patients with a basal AFE score >3 had a high probability of reaching the top score on MI. SA, SS and HMS exhibited inferior predictive power. It is important to note that the 3 measures used as dependent variables (NHPT, FugM and MI) evaluate different functional aspects, thus providing a very comprehensive picture of arm function. One possible explanation of these results may be that preservation of AFE might possibly be related to the degree of sparing of cortico-motoneuronal pathways after stroke. Given that cortico-motoneuronal representation of distal movement is mostly unilateral (whereas proximal movement is represented bilaterally in the brain), the only way to test sparing of neurons governing distal function is by requiring the patient to perform distal movements. Among the most commonly used clinical tests of distal movement the AFE scale presents a number of clinical advantages. The finger extension task is very easily understood by most stroke patients, whereas other selective finger movements (eg, sequences of opposition between the thumb and other fingers) are sometimes too difficult to understand and execute and may be influenced by the patient's cognitive status. A commonly used test of distal movement is finger flexion. This movement (not tested in the present study), however, may be part of synergistic movements emerging after lesions involving corticospinal neurons, and this could be a confounding factor in terms of prognosis of arm recovery. Limitations of the study are the small sample size and the limited number of potential prognostic factors examined.

在看完上述期刊內文後，請回答下列問題：

1. 請說明作者從事本篇研究之原由、方法及發現為何？(40%)
2. 本篇研究之顯著性程度(significance level) 設為 $P < 0.01$ 而非 < 0.05 ，有何優、缺點？(20%)
3. 依作者在討論中(Discussion)的論述，請敘述本研究之臨床意義與應用？(20%)
4. 依作者所言本篇研究的主要限制有 small sample size 及檢視的 potential prognostic factors 過少，請說明這些限制因素如何限制研究結果的應用。(20%)

1. 請列舉五種抽樣方法，定義並比較其優缺點。(20%)
2. 質性研究如何解決信度問題？請就資料收集與資料分析層面說明。(10%)
3. 請比較質性研究不同取向之特性與適用研究主題：phenomenology, grounded theory, ethnography. (15%)
4. 請自行選取臨床案例，設計一個完善的隨機控制研究，詳細描述 a. 研究題目 b. 研究假設/研究問題 c. 抽樣方法 d. 個案 e. 研究設計 d. 資料收集 e. 統計方法 f. 倫理考量 (40 %)
5. 名詞解釋 (15%)
 - 甲、Heterogeneity
 - 乙、Levels in evidence-based medicine
 - 丙、External validity
 - 丁、Cross-over design
 - 戊、Analysis Of Variation , ANOVA