

壹、問答題 (每題 8 分)

一、何謂顯著水準？在統計檢定中如果將顯著水準降低，對於犯型 II 錯誤的機率有什麼影響？

二、何謂自由度 (degree of freedom)？請舉例說明之。

三、何謂 Poisson 分配？其與二項分配在使用上有何差異？

四、試簡要說明中央極限定理 (Central Limit Theorem)。

五、試述統計假設檢定之原理。

貳、計算題 (40%)

一、若  $X$  與  $Y$  為隨機變數，其聯合間斷機率分配如下表：

$f_{x,y}(x,y)$	$y$			
	0	1	2	
$x$	0	0.20	0.25	0.10
	1	0.10	0.30	0.05

請回答下列問題並列出計算過程 (每題 4 分)：

1. 推導證明  $X$  與  $Y$  是否相互獨立？

2. 求  $Cov(x,y)$  之值。

3. 求  $\rho_{x,y}$  之值。

4. 設  $Z = x + y$ ，請計算並列表寫出  $Z$  的機率分配。

5. 設  $Z = x + y$ ，請算出  $Var(Z)$  之值。

二、雷鳥模型公司在從事其新產品 F18 戰機模型試銷時，由不同試銷點獲得以下訂價與每日銷量資料：

訂價 (X) (\$)	銷量 (Y) (台/每日)
1	36
1	33
2	31
3	29
3	27
4	25
5	23
5	20

請回答下列問題並列出計算過程 (每題 4 分)：

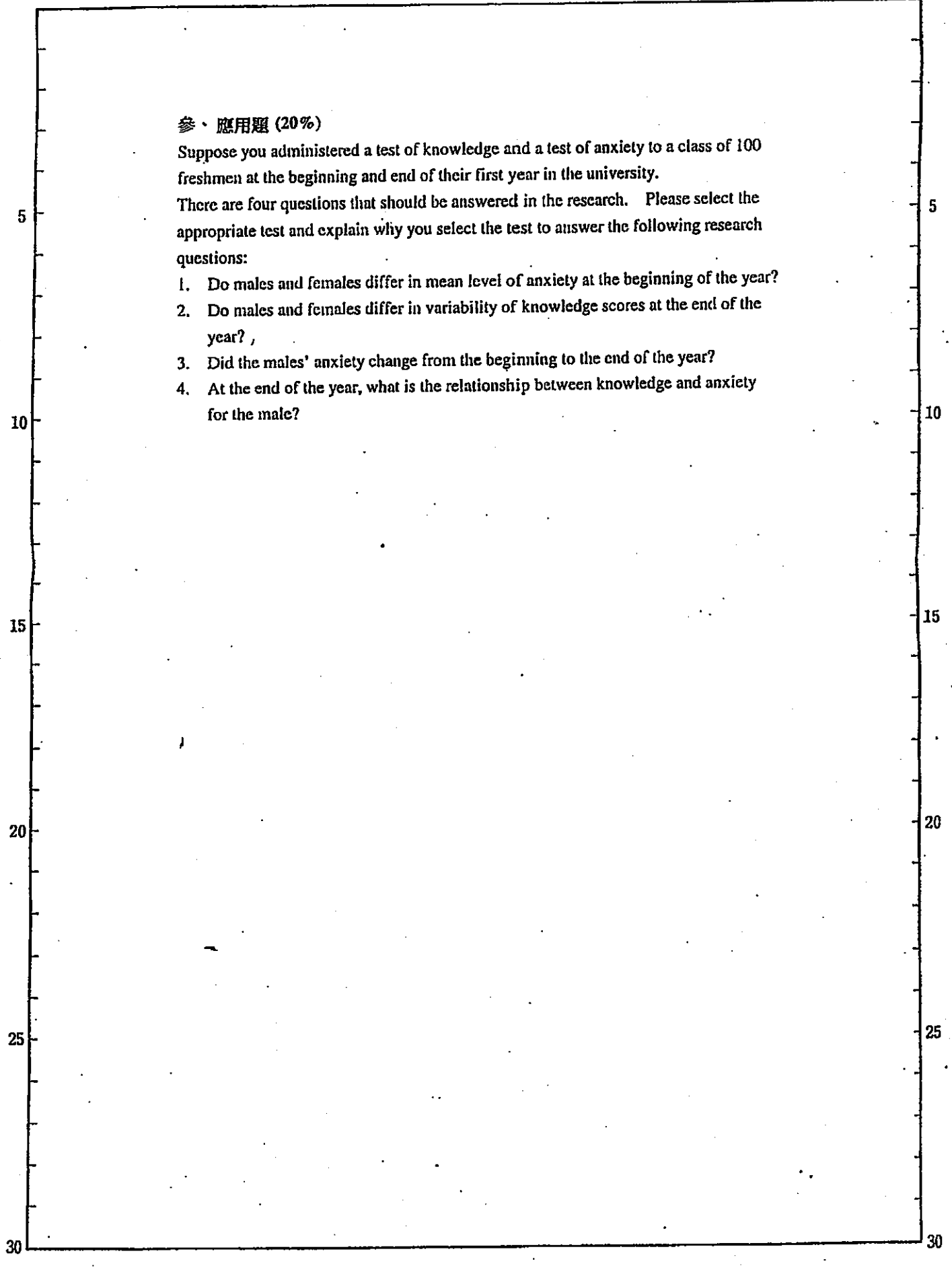
1. 畫出散佈圖，並依圖判斷價格與銷量間是否存有線性關係？
2. 請求出銷售量與定價關係之最小平方估計迴歸線 ( $Y = a + bX$ )。
3. 此一估計迴歸線是否適當？請解釋。
4. 請透過統計檢定驗證這兩個變數間是否有顯著關係？使用  $\alpha = 0.05$ 。  
註： $Z_{(0.95)} = 1.645$ ， $Z_{(0.975)} = 1.96$ ， $t_{(0.05, 8)} = 1.860$ ， $t_{(0.025, 8)} = 2.306$ ，  
 $t_{(0.05, 7)} = 1.895$ ， $t_{(0.025, 7)} = 2.365$ ， $t_{(0.05, 6)} = 1.943$ ， $t_{(0.025, 6)} = 2.447$
5. 假設雷鳥公司最後決定將此產品價格訂為 \$4，請計算其每一銷售點每日銷售量的 95% 區間估計。

參·應用題 (20%)

Suppose you administered a test of knowledge and a test of anxiety to a class of 100 freshmen at the beginning and end of their first year in the university.

There are four questions that should be answered in the research. Please select the appropriate test and explain why you select the test to answer the following research questions:

1. Do males and females differ in mean level of anxiety at the beginning of the year?
2. Do males and females differ in variability of knowledge scores at the end of the year?
3. Did the males' anxiety change from the beginning to the end of the year?
4. At the end of the year, what is the relationship between knowledge and anxiety for the male?



國立東華大學國企所國際貿易理論與政策入學試題

一、申論生產要素價格均等化定理的主要內涵。(34%)

二、試論國際貿易與經濟成長的關係。(33%)

三、說明：(33%)

(1) 關稅同盟的原理及其動態效果。

(2) 區域經濟結合的發展。

Questions 1-14

Directions: In this part, each item presents a sentence, with a word or a phrase underlined. Below each sentence there are four other words or phrases. Find the word or phrase which would best explain the underlined word or phrase. Mark your choice on your answer sheet.

Example: I can hardly believe it; it is amazing.

(A) over and over (B) unconscious (C) unreliable (D) incredible

Answer: Mark D to indicate your choice on the answer sheet as follows:

A B C D

- (1) It is a curious phenomenon of nature that only two species practice the art of war—man and ants, both of which, significantly, maintain complex social organizations.  
(A) example (B) fact (C) instinct (D) meaning
- (2) Fire trucks, their sirens screaming, raced up to us as we squealed to a stop.  
(A) drivers (B) engines (C) alarms (D) tools
- (3) English has become the most "mixed" of languages, having received throughout its history all kinds of foreign elements with ease and assimilated them all to its own character.  
(A) translated (B) absorbed (C) shifted (D) changed
- (4) Gazing up into the darkness I saw myself as a creature driven and derided by vanity; and my eyes burned with anguish and anger.  
(A) cheated (B) ridiculed (C) blinded (D) annoyed
- (5) Perhaps she scribbled some pages up in an apple loft on the sly, but was careful to hide them or set fire to them.  
(A) prepared carefully (B) saved slowly (C) sawed meticulously (D) wrote in a hurry
- (6) Many other advantages might be enumerated.  
(A) disappeared (B) counted off (C) categorized (D) supplemented
- (7) Marriage was not an affair of personal affection, but of family avarice.  
(A) grudge (B) fame (C) tradition (D) greed
- (8) The story of Santa Claus is a myth cherished by children.  
(A) excuse (B) song (C) legend (D) rally
- (9) John lost his temper and kicked the vending machine.  
(A) wasted his money (B) was behind the schedule (C) became angry (D) got sick
- (10) Robert asked Nancy to keep him company.  
(A) to visit his factory (B) to help him do business (C) to sympathize with him (D) to accompany him
- (11) His remittance is overdue.  
(A) too large (B) canceled (C) in the mail (D) late
- (12) Like Moses, who from the land of Moab glimpsed but could not reach the promised land, Kilpatrick perished on the eve of the victorious revolt which he had premeditated and dreamt of.  
(A) succeeded (B) died (C) rested (D) arrived
- (13) The matron had given her leave to go out as soon as the women's tea was over and Maria looked forward to her evening out.  
(A) to depart (B) permission (C) order (D) favor
- (14) Her image accompanied me even in places the most hostile to romance.  
(A) unfriendly (B) lovely (C) amiable (D) sexual

Questions 15-30

Directions: In this part, each item consists of an incomplete sentence. Four words or phrases, each marked (A), (B), (C), or (D), are given beneath the sentence. You are to choose the one word or phrase that best completes the sentence. Then, on your answer sheet, find the number of the question and mark your answer.

- (15) Our senior faculty member Professor William Crawford has been here \_\_\_\_\_.  
(A) After 1980 (B) in 1980 (C) since 1975 (D) around 1975
- (16) How dull it is to pause, to make an end, / To rust unburnish'd, not to shine in use! / As though to breathe \_\_\_\_\_ life.  
(A) is (B) was (C) were (D) being
- (17) According to the conditions of my scholarship, after finishing my degree, \_\_\_\_\_.  
(A) my education will be employed by the university (B) employment will given to me by the university  
(C) the university will employ me (D) I will be employed by the university
- (18) I wonder \_\_\_\_\_.  
(A) how must cost there shoes (B) how much do these shoes cost  
(C) how much these shoes cost (D) how much are these shoes cost
- (19) His doctor suggested that he \_\_\_\_\_ a short leave of absence.  
(A) would take (B) took (C) take (D) taking
- (20) The story is vivid, interesting, and \_\_\_\_\_.  
(A) has a simple plot (B) has a simplistic plot (C) simple in plot (D) being simple
- (21) They are both looking forward \_\_\_\_\_ next month.  
(A) to going on vacation (B) to be going on vacation  
(C) to go on vacation (D) to go to vacation
- (22) Flight eighteen from Seattle is now arriving at \_\_\_\_\_.  
(A) gate five (B) the gate five (C) fifth gate (D) the five gate
- (23) But this and many others I omit, \_\_\_\_\_ studious of brevity.  
(A) is (B) was (C) being (D) trying
- (24) It is \_\_\_\_\_ that I'd like to go on a picnic.  
(A) a love day such (B) so lovely day (C) too lovely a day (D) such a lovely day
- (25) His newly published book is entitled \_\_\_\_\_.  
(A) An Introduction of American Literature (B) An Introduction To American Literature  
(C) The Introduction to Literature of America (D) An Introduction to American Literature
- (26) He said he would have it ready \_\_\_\_\_ next Monday.  
(A) by (B) through (C) until (D) at
- (27) Having driven his truck for fifteen hours without rest, \_\_\_\_\_.  
(A) his friends knew he would feel tired (B) he felt extremely tired  
(C) his truck needed gasoline (D) someone needed to find a bed for him
- (28) We were late getting to the football game, so we missed almost all of the \_\_\_\_\_.  
(A) Quarter One (B) first quarter (C) quarter first (D) quarter A
- (29) She says she will cook dinner as soon as \_\_\_\_\_.  
(A) John arrives (B) John arrived (C) John will arrive (D) John had arrived
- (30) Even though a lot of money was spent publicizing the concert, \_\_\_\_\_.  
(A) many people attended it (B) those who put up the money for the concert made a good profit  
(C) attendance was rather poor (D) everyone knew about it, whether they attended or not

Questions 31-45

Directions: Read the passages below. After each passage you will find a number of vocabulary items that are underlined in the original passage. Each item is followed by four words or phrases. You are to choose the word or phrase that best describes the meaning of the vocabulary item as it was used within the context of the passage.

The word "landslide" is too puny to describe the vote's outcome. Pakistan's new prime minister won by a margin most other democratically elected politicians can only dream of. With most of last week's ballots counted, his Pakistan Muslim league had captured 134 of the National Assembly's 202 seats. The runner-up Pakistan People's Party lost all but a meager 18. Imran Khan, the reformist who aspired to become the nation's political savior, fielded candidates in 336 federal and provincial contests; they won exactly zero. The size of the new Prime Minister's victory would give him a wide-open mandate - except for one unfortunate detail. The country he is supposed to run is in ruins.

(31) landslide

(A) slippery place (B) large-scale shift of earth (C) overwhelming majority (D) loss of support

(32) puny

(A) weak and inadequate (B) short and thin (C) exaggerated (D) punishing

(33) margin

(A) edge (B) substitute for butter (C) not of main importance (D) amount by which one wins

(34) captured

(A) deprived rivals of (B) used (C) took prisoner (D) destroyed

(35) runner-up

(A) biggest loser (B) second best (C) fast moving (D) athletic

(36) meager

(A) combined into one (B) small or inadequate number (C) likely to cause a headache  
(D) difficult to obtain

(37) savior

(A) having a good taste (B) one who helps others avoid ruin (C) a religious person  
(D) one who saves money and becomes wealthy

(38) wide-open mandate

(A) free-market policy (B) approval for a free-trade zone (C) unqualified support from voters  
(D) very limited political support

Europe lags in many high-tech industries, but mobile communications is not one of them. Five years ago the European Union (EU) unveiled the world's most ambitious digital cellular system. Called GSM, or global system for mobile communications, it proved not only that Europe could conceive a cutting-edge communications standard but also that it could roll it out smoothly across the continent's fractious nations. Some 80 countries outside Europe have rushed to adopt the GSM standard. But in today's computer driven world, "advanced technologies" can grow stale in a hurry. While GSM's equipment suppliers - the biggest of which is Sweden's Ericsson - count their subscribers, an upstart US company named Qualcomm has popped up with an even better wireless system. The technology for this system is the most efficient system technology in the world, and for that reason it could grow dominant as the world's phone operators scramble to find more talk space for their customers.

(39) *lags*

(A) is not as advanced as others (B) is in first place (C) pulls others into (D) is equal to others

(40) *unveiled*

(A) concealed (B) revealed (C) developed (D) finalized

(41) *cutting-edge*

(A) dangerously sharp (B) most advanced (C) second most highly developed  
(D) tending to cause divisions

(42) *fractious*

(A) argumentative and combative (B) broken (like a bone)  
(C) divided into small parts (D) harmonious

(43) *grow stale*

(A) lose its nutritional value (B) become obsolete (C) compete successfully  
(D) be unable to move forward

(44) *suppliers*

(A) providers (B) purchasers (C) those who guard supplies (D) customers

(45) *dominant*

(A) be one of the important players (B) be unable to compete  
(C) have the greatest influence (D) be controlled by others

*Questions 46-50*

Directions: In the sentences below several items are underlined and marked (A), (B), (C), or (D). Choose the item (A), (B), (C), or (D) that would not be acceptable in standard English.

(46) Enthusiasm for computer-aided language learning has increased steady since the concept was developed in the 1970s.  
(A) (B) (C) (D)

(47) While a student at Harvard University he studied both French in addition to Russian.  
(A) (B) (C) (D)

(48) He told me to tell you to contact with him in case you have any questions.  
(A) (B) (C) (D)

(49) Even air fares increase, many people will still choose air travel because it saves time.  
(A) (B) (C) (D)

(50) Ask him to prepare a picnic lunch for the students and I by noon today.  
(A) (B) (C) (D)



### 國立東華大學國企所經濟學入學試題

I、請就經濟發展理論模式及下列資訊來評論國內之產業結構、教育投資及所得成長中「高學歷與高失業率」和「外勞引進」等奇特現象與問題。(30分)

年代	人年均所得 (N.T.千元- 1991年值)	就業分佈(百萬人)				六歲以上人口受教育程度(百萬人)				失業率(%)			
		總數	農業	製造業	服務業	總人口	高等	中學	小學	大學	專科	高中 職	國中 小學
1960	27.9	3.5	1.7	0.7	1.0	8.5	0.16	1.0	4.6				
1970	54.3	4.6	1.7	1.3	1.6	12.4	0.46	3.3	6.4				
1980	105.8	6.5	1.3	2.8	2.5	15.4	1.10	5.7	6.7	1.8	2.23	2.16	0.97
1990	206.8	8.3	1.1	3.4	3.8	18.4	1.99	8.5	6.5	2.28	2.05	2.13	0.90
1991	219.6	8.4	1.1	3.4	4.0	18.6	2.14	8.7	6.3	2.07	2.25	1.91	0.84
1992	233.9	8.6	1.1	3.4	4.1	18.8	2.35	9.0	6.1	2.38	2.12	1.98	1.00
1993	244.7	8.7	1.0	3.4	4.3	19.0	2.50	9.3	5.9	2.52	2.35	2.25	1.18
1994	254.5	8.9	0.9	3.5	4.6	19.2	1.95	10.1	5.9	3.16	3.17	2.96	1.98

II、Use Benefit - Cost and Break- Even Analysis to select one of the following two projects; compute the B-E quantity, B/C ratio, net benefit assumptions and results with the present-value and the Internal Rate of Returns for each project -IRR (40%)

	Project A	Project B
1. Fixed Cost:	\$10,000.00	\$100.00
2. Variable Costs/unit:	1 worker, \$8/hour ; 8hours/day 360days/year	2 Workers, \$5/hour, 8hours/day 360days/year
3. Output Rate:	5unit/hour/worker	2 Units / hour / worker
4. Price:	\$2.5/unit	\$ 2.8/unit
5. Interest or Discount rate:	5% per year	5% per year
6. Life cycle:	5years	6 years
7. Probability of success:		
(Capacity Utilization Rate)	0.9	0.85

III、 Giving the following functions of a multinational corporation  
 $Q = F(L, K, I)$   $TC = \alpha_0 Q^{\alpha_1} P_L^{\alpha_2} P_K^{\alpha_3} P_I^{\alpha_4}$  and  $TR = P \cdot Q$  Please discuss and illustrate the following terms and procedures

- (1) Optimal conditions for the company's factor input-output decisions.(10%)
- (2) The elasticity concept with respect to output (Q) and the economies of scale of operation ( $\alpha_1$ ) (10%)
- (3) How do you estimate the partial price elasticity of labor  $P_L$  ( $\alpha_2$ ) by holding constant other price parameters for capital ( $P_K$ ) and information resources ( $P_I$ ) ? (10%)

作文

100%

大學設分說之我見

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