

※選擇題請務必於答案卷上五題一列作答※

EXAMPLE: 1. ( ) 2. ( ) 3. ( ) 4. ( ) 5. ( )  
6. ( ) 7. ( ) 8. ( ) 9. ( ) 10. ( )

**I. Multiple Choice Question. 2 points for each question. 80 points.**

**PART A: Question 1 to 10 you should choose the answer closest to the meaning to the underlined word or phrase. One answer only.**

1. China is suspected as the primary source of SARS that is spreading fast across the world.  
(A) minor (B) primitive (C) first (D) intentional (E) targeted
2. The parents have lofty expectations for their son, so they sent him to the best high school.  
(A) high (B) shaky (C) small (D) lowly (E) slight
3. Both sides in the election are trying to throw accusation at each other; the ruling party supporters claim that the opposing party is trying to thwart the will of people.  
(A) evoke (B) help (C) figure out (D) tickle (E) block
4. Some people believe that lawyers are always working to see that justice is done. On the other hand, some believe that lawyers only want to manipulate the legal system to get what they want. Could both sides be right?  
(A) control in a dishonest way (B) give help to (C) explain (D) disagree with (E) cheat on
5. Several companies are bringing out a couple of new models of laptops next year.  
(A) changing (B) modifying (C) finishing (D) producing (E) benefiting
6. On the defensive about whether the war is unfolding as quickly and as smoothly as they had expected, the U.S. administration officials expressed confidence in the strength and flexibility of their military plan  
(A) removing (B) developing (C) foretelling (D) expecting (E) providing
7. Although the hazards of space travel are many, the rewards made it a worthwhile endeavor.  
(A) task (B) difficulty (C) effort (D) behaviors (E) incident
8. The renewed interest in single-sex schooling has fostered a controversy among educators.  
(A) remembered (B) repeated (C) confident (D) brought back again (E) delayed
9. The congressman says he hopes the government takes a tough stand on the Cross-Strait issues.  
(A) changes its position on (B) is optimistic about (C) makes a difficult choice about  
(D) maintains a high standard on (E) is rude about
10. The workers stood in front of the ruined factory and wondered what to do next; they doubted that they would even collect their final pay checks now since the company was insolvent.  
(A) changing a name (B) hiring new workers (C) prospering (D) laying people off (E) bankrupt

**Part B. Question 11 to 20 you should choose the answer that best completes the sentence. One answer only.**

**Question 21 to 25 you should choose the best answer to fill each of the numbered blanks in the passage. One answer only.**

11. In Hong Kong, most sumptuous bank headquarters \_\_\_\_\_ by a feng shui master who arranges the environment to make maximum use of "positive energy sources."  
(A) have seemed designed (B) seem to have been designed (C) seem to design  
(D) were seemingly designed (E) seem designed
12. To call the music of another music-culture "primitive" is one's own standards on a group \_\_\_\_\_ them.  
(A) do not recognize (B) be not recognizing (C) that doesn't recognize (D) , doesn't recognize  
(E) be recognized by them

13. Two hamburgers contain \_\_\_\_\_ the same number of chicken drumsticks.  
 (A) more than fat as (B) more fat than (C) more fat as (D) as fat protein (E) fat as
14. Case studies are the target of much skepticism in the scientific community, \_\_\_\_\_ used extensively by numerous researchers.  
 (A) they are (B) unless are (C) are (D) yet they (E) yet they are
15. \_\_\_\_\_ rain at all falls in the dry season in the Savanna regions of Africa.  
 (A) Not (B) Without (C) No (D) Neither (E) Not having
16. A survey of public opinion—popularly called a poll—can provide us with a reasonably accurate measure of how people think, \_\_\_\_\_ certain conditions are met.  
 (A) having (B) giving (C) seeing (D) had (E) provided
17. The higher the content of carbon dioxide in the air, \_\_\_\_\_.  
 (A) more heat it retains (B) than it retains more heat (C) heat will be more retaining  
 (D) it retains more heat (E) the more heat it retains
18. *Chicago*, \_\_\_\_\_, has given life to the musical, a genre many wrote off years ago  
 (A) the movie (B) is the movie (C) which has a movie (D) movie it is (E) being movie
19. The purpose of a labor union is to improve the working condition, \_\_\_\_\_, and pay of its members.  
 (A) jobs are secured (B) to be secure (C) the job's security (D) job security (E) having job security
20. Leslie Cheung \_\_\_\_\_ internationally for his role in "Farewell My Concubine," where he played a homosexual Chinese opera singer — a role which closely mirrored his life.  
 (A) have know for the best (B) was best known (C) being best known (D) known (E) known best

\_\_\_\_\_ **21** \_\_\_\_\_ is to weep. The human species is the only one in the whole of animated nature that sheds tears. The trained inability of any human being to weep is a lessening of his capacity to be human—a defect which usually goes deeper than the mere inability to cry. \_\_\_\_\_ **22** \_\_\_\_\_ we feel like it, let us all have a good cry—and clear our minds of those cobwebs of confusion which have for so long \_\_\_\_\_ **23** \_\_\_\_\_ the ineluctable necessity of crying.

21. (A) To be human (B) Human (C) That human (D) Which human (E) Since the human
22. (A) In case (B) Despite (C) Unless (D) If (E) Otherwise
23. (A) prevented us to understand (B) prevented us from understanding (C) prevented understanding  
 (D) been prevented us understanding (E) preventing us to understand

The World Health Organization, the Centers for Disease Control and Prevention, and the Hong Kong Health Department have all said masks are mainly of value for health care workers, to help prevent the spread of illness by people who feel sick and to protect \_\_\_\_\_ **24** \_\_\_\_\_ with those who feel ill. Advocates of wider mask use contend that people who are starting to feel unwell, and are thus perhaps \_\_\_\_\_ **25** \_\_\_\_\_, are more likely to wear masks if they are less likely to be stigmatized in a community where healthy people are wearing masks too.

24. (A) close contact (B) those have contact closely (C) having a contact (D) those in close contact  
 (E) at close contact
25. (A) on the verge of infectiousness (B) with the infectious verge (C) in the infectiousness  
 (D) infectious verge (E) having verge of infectiousness

**PART C: Reading Comprehension.** You will read several passages. Each one is followed by one question or a number of questions about it. Question 26-40, you should choose the ONE best answer to each question.

Did you know that the fats in our bodies, which we try so hard to get rid of through exercising and surgery, have a function? That the fat cells fight and never die? That exercising is better than dieting? That 70 percent of your calories are burned while you rest?

What is the main idea of the passage?

26. (A) Fat is increasingly harmful to your health as you age.  
(B) There is more to fat than meets the eyes (pun sort of intended)  
(C) Understanding in our bodies is important for good health.  
(D) The more you rest, the faster your calories will be burned off.  
(E) Exercising is as important as Dieting

We do not know how life began, but the fact that we exist proves that the right ingredients, in the right amounts, and arranged in the correct way, did come together at some time in the past. The best approximation is that it happened at least 2.5 to 3 billion years ago.

27. Which of the followings can best identify the topic?  
(A) the past (B) time (C) the planet (D) evolution (E) origin of life

As a firefighter, I have seen many people die in hotel fires. Most could have saved themselves had they been prepared. There are over 10,000 hotel fires per year in the United States. In 1979, the latest year for which figures are available, there were 11,500 such fires, resulting in 140 deaths and 1,225 injuries."

28. What does the author use to introduce the essay?  
(A) quotation (B) example (C) question (D) historical reference (E) facts and statistics.

In May 1960, the FDA approved the sale of a pill that arguably would have a greater impact on American culture than any other drug in the nation's history. For women across the country, the contraceptive pill was liberating: it allowed them to pursue careers, fueled the feminist and pro-choice movements and encouraged more open attitudes towards sex.

Among the key players in the development of the drug were two elderly female activists who demanded a contraceptive women could eat like aspirin and then paid for the scientific research; a devout Catholic gynecologist who believed a robust sex life made for a good marriage and argued tirelessly that the Pill was a natural form of birth control; and a brilliant biologist who bullied a pharmaceutical company into risking a possibly crippling boycott to develop this revolutionary contraceptive. In describing the obstacles they all hurdled, *The Pill* presents a compelling account of a society in transition.

29. The passage would most likely to be found in a textbook on which of the following subjects:  
(A) Social Studies (B) History (C) Biology (D) Writing (E) Psychology

30. It can be inferred from the passage that \_\_\_\_\_.  
(A) the sale of the contraceptive pill was a success  
(B) the sale contraceptive pill had strengthened the feminist movement  
(C) the contraceptive pill was the trigger of AIDS  
(D) no other drug could be as successful as *The Pill*  
(E) the sale of the Pill has started the fight between biologist and gynecologist

Someday we will all have robots that will be our personal servants. They will look and behave much like real humans. We will be able to talk to these mechanical helpers and they will be able to respond in kind. Amazingly, the robots of the future will be able to learn from experience. They will be smart, strong, and untiring workers whose only goal will be to make our lives easier.

31. Which sentence from the paragraph expresses the main idea?

- (A) Someday we will all have robots that will be our personal servants.
- (B) We will be able to talk to these mechanical helpers and they will be able to respond in kind.
- (C) They will look and behave much like real humans.
- (D) Amazingly, the robots of the future will be able to learn from experience
- (E) Robots will be smart, strong, and untiring workers.

As the conflict in Iraq deepens, so has the debate about television coverage. Secretary of Defense Donald H. Rumsfeld complained on Friday that "media mood swings" was distorting the depiction of American military strategy. Actually, the movement was less up and down than across the ideological spectrum. In the initial phase, the loudest complaints about bias were lodged by antiwar groups frustrated that television gave scant attention to their protests. As casualties mounted, so did conservatives' laments about a liberal bias at the networks.

32. It can be inferred from this passage that \_\_\_\_\_.

- (A) there are conflicts between antiwar groups and the authority
- (B) both antiwar groups and the government are unhappy about bias shown on TV
- (C) the TV coverage is defending the U.S. policies
- (D) People have debated a lot about the complete coverage of the war
- (E) the media is very objective

Diagnosing Alzheimer's disease (AD) has always been an inexact science. Now, there may be a new tool to add to the box. Researchers from the Medical College of Wisconsin used magnetic resonance imaging (MCI) to scan the brains of 24 people. By measuring activity in the hippocampus, the first place AD develops, they could determine which patient were normal, which had AD, and which had mild cognitive impairment (MCI), a major risk factor for AD. Until now, doctors have relied on the patient's symptoms to distinguish between patients with MCI and people with AD; the new test could provide objective information about just how close an MCI patient is to eventually developing AD.

The test is years from perfection and AD drugs are still in trial stages. But the possibility of early detection is now closer.

33. What might be a good title for this passage?

- (A) Alzheimer's Advance      (B) Alzheimer's Cause      (C) The Testing Process of Alzheimer
- (D) the test and AD drugs      (E) the comparison between AD and MCI

34. The new test is served to be \_\_\_\_\_.

- (A) a perfect treatment for AD patients now
- (B) a pre-trial for a new drug
- (C) a research tool for collecting data for the better treatment for AD patients
- (D) detecting the relationship between the AD patients and the current drugs used for AD
- (E) a possible early detection about how a MCI patient would develop AD

The Snowy Owl is a bird of Arctic tundra or open grasslands and fields. They rarely venture into forested areas. During southward movements they appear along lakeshores, marine coastlines, marshes, and even roost on buildings in cities and towns. In the Arctic, they normally roost on pingaluks (rises in the tundra) and breed from low valley floors up to mountain slopes and plateaus over 1,000 meters (3,000 feet) in elevation. When wintering in the Arctic, they frequently wind-swept tundra with little snow or ice accumulation. At more southern latitudes they typically frequents agricultural areas

35. The passage is about the Snowy Owl's \_\_\_\_\_.

- (A) classification (B) hunting (C) breeding (D) habitat (E) distribution

Another noteworthy trend in twentieth-century in the United States has been the use of folk and popular music as a base for more serious composition. The motivation for these borrowings from traditional music might be a desire on the part of a composer to return to simpler forms, to enhance patriotic feelings, or to establish an immediate rapport with an audience. For whatever reason, composers such as Aaron Copland and Charles Ives offered compositions featuring novel musical forms flavored with refrains from traditional Americana. Copland drew upon folk music, particularly as sources for the music he wrote for the ballets Billy the Kid, Rodeo, and Appalachian Spring. Ives employed the whole gamut of patriotic songs, hymns, jazz, and popular.

36. The paragraph preceding this passage most probably discusses \_\_\_\_\_.

- (A) nineteenth-century music (B) one development in music in the last century  
(C) the works of Aaron Copland (D) the history of folk and popular music

37. Which of the following best describes the main idea of the passage?

- (A) Traditional music flavored some American musical compositions in the twentieth century.  
(B) Ives and Copland have used folk and popular music in their compositions.  
(C) A variety of explanations exist as to why a composer might use traditional sources of music  
(D) Traditional music is composed of various type of folk and popular music.

38. It can be inferred from this passage that the author is not sure \_\_\_\_\_.

- (A) when Ives wrote his compositions (B) that Ives and Copland actually borrowed from traditional music  
(C) why certain composers borrowed from folk and popular music  
(D) if Copland really featured new musical forms

39. Which of the following is NOT listed in the passage as a source for Ives's compositions?

- (A) National music (B) Religious music (C) Jazz (D) American novels

40. The passage would most probably be assigned reading in which of the following course?

- (A) American History (B) The History of Jazz (C) Modern American Music (D) Composition

II. Essay. Please write an essay in about 150 words. 20 points.

Topic: Some people dream of reaching unlikely goals, while other people set more reasonable and reachable goals. Which kind of person do you tend to be? Please give examples to support your statement.

- Please explain the following terms:
  - Herd immunity (5%)
  - Pandemic (5%)
  - Epidemic (5%)
- Within a population of 1,000 adults, an initial clinical examination reveals 100 individuals with diabetes mellitus. Over the following 10 years, 40 additional subjects develop diabetes mellitus; five of these individuals die within 5 years of their diagnosis.
  - What is the initial prevalence of diabetes mellitus in this population? (5%)
  - What is the risk of developing diabetes mellitus within 10 years? (5%)
  - What is the 5-year case fatality of the incident cases? (5%)
- A comparison of clinically diagnosed versus autopsy-confirmed gastric and peptic ulcers was performed in 10,000 consecutive deceased patients, as shown in following Table.

Clinical diagnosis	Autopsy findings		Total
	Ulcer	No ulcer	
Ulcer	130	20	150
No ulcer	170	9,680	9,850
Total	300	9,700	10,000

Comparison of clinical diagnosis of gastric and peptic ulcer with autopsy findings in 10,000 consecutive patients who underwent autopsy.

- What is the sensitivity of a clinical diagnosis? (5%)
  - What is the specificity of a clinical diagnosis? (5%)
  - What is the positive predictive value of a clinical diagnosis? (5%)
  - What is the negative predictive value of a clinical diagnosis? (5%)
- How to determine a causal relationship between a risk factor and a disease from the results of a study? (15%)
- What is the measurement of effects? (10%)
- What is the double-blind procedure of a clinical trial? (10%)
- How to determine the risk factors of food poisoning from an outbreak using the epidemiological methods? (15%)

問答申論題(100分，每題20分)

1. 試述空氣中光化學反應的污染機轉，與其對環境的影響及危害。
2. 何謂自來水的前氯、後氯消毒？試述水中加氯消毒的機轉與三鹵甲烷之關係。
3. 去年高雄地區登革熱疫情爆發，試述該病發生原因、其嚴重性何在、應如何預防？
4. 何謂環境荷爾蒙？試述其對環境的影響及危害。
5. 為了保護環境，減廢人人有責，試述生活環境中應如何落實？

三部分共計 100 分

解釋名詞：請以簡單說明並舉例 (每題 5 分，共四題)

- 1 Need vs. Demand
- 2 Hospital Direct Costs
- 3 Disease Management
- 4 Clinical pathway

簡答題：(每題 12 分，共五題)

- 一、現行之醫院評鑑類別?其各類別之申請條件(如床數科別人員等)差別何在
- 二、何謂封閉性醫院系統(closed system)及開放性醫院系統(open system)?請分別舉一典型代表國家說明兩系統之差異
- 三、何謂總額預算支付制度 (global budget system)?目前健保局已實施總額預算制度之項目有哪些?
- 四、定義 Break-Even Analysis，此分析最適用於哪些醫務管理決策上?
- 五、請說明垂直整合(Vertical Integration)及平行整合(Horizontal Integration)之差異。

申論題：(20 分，共一題)

- 一、傳統性醫院之組織架構主要以功能式結構(Functional Structure)為主，請以此結構圖式說明醫院之主要組織結構應包括哪些大系統或科室始可發揮應有之功能?



應考同學得使用普通電子計算機或工程(商業)用電子計算機。其他電子輔助機具一律不可使用。本卷所附之統計表可供計算參考，其餘書本、筆記、講義、印刷品等，請收放於考場規定位置。

- 假設在高醫檢驗的一般成人血中膽固醇平均為 180 mg/dL，且高醫檢驗科提供的標準差(standard deviation)是 50 mg/dL。今天某工廠在高醫體檢 60 名成人，得血中膽固醇平均為 200 mg/dL。請檢定該工廠在高醫體檢的 60 人的血中膽固醇平均有沒有超過高醫平日檢驗的成人標準。(10%)  
Step 1, 請問 null hypothesis ( $H_0$ ) 是：  
Step 2, 計算 Z 值 (z-value) 是：  
Step 3: 所以結論是：
- 某幼稚園小朋友體重是常態分佈 (normal distribution)，平均值是 8 公斤，標準差(standard deviation)是 2 公斤，則此幼稚園中體重超過 10 公斤的小朋友大約佔有多少百分比？為什麼？(5%)

3. 請根據以下 PC SAS 6.12 的報表，回答問題：(15%)

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Variable: WEIGHT

GROUP	N	Mean	Std Dev	Std Error	Variances	T	DF	Prob> T
0	2002	55.85	10.10	0.23	Unequal	1.98	2214.2	0.048
1	1065	55.10	9.87	0.30	Equal	1.96	3065.0	0.050

For  $H_0$ : Variances are equal,  $F' = 1.05$  DF = (2001,1064) Prob>F' = 0.39

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3-1. 如果我們定  $\alpha < 0.05$ ，則請比較這兩組 samples 的變異(variance)

3-2. t 值 (t-value) 是多少？

3-3 如果我們定  $\alpha < 0.05$ ，則 T-test 的結論是什麼？

4. 比較五個公司(編號 CNO 1, 2, 3, 4, 5)員工的平均體重，用 PC SAS 6.12 得到如下表：(35%)

Dependent Variable: WEIGHT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	A	3956.69377379	989.17344345	D	0.0001
Error	B	303931.41773583	C		
Corrected Total	3066	307888.11150962			

組間的自由度 A 是多少？

請計算 B, C, D 各是多少？(有效數字至小數點以下二位)

同上題，由 one-way ANOVA 的 F-table 我們知道有顯著的差異，於是再進行事後檢定：

CNO	N	-----WEIGHT-----		Tukey test significantly different from	Scheffe test significantly different from
		Mean	SD		
1	787	54.9085133	9.0899809	CNO=2,4	CNO=4
2	492	56.6565041	10.5441511	CNO=1,3	CNO=3
3	586	54.1877133	9.5125065	CNO=2,4	CNO=2,4
4	461	57.6008677	12.0423672	CNO=1,3,5	CNO=1,3,5
5	741	55.4466937	9.3543706	CNO=4	CNO=4

請問事後檢定 Tukey test 和 Scheffe test 有何不同？結論是什麼？

5. 此五個公司(編號 CNO 1, 2, 3, 4, 5)會頭痛(Headache)與不會頭痛(Without)的人數如下表左側, 今進行卡方檢定(Chi-square test) 如下表右側。(15%)
- 5-1. 請問自由度(degree of freedom)等於多少?
- 5-2. 公司編號 3 (CNO= 3) 會頭痛(Headache)的員工期望值有幾個(expected value)? (有效數字至小數點以下一位)
- 5-3. 此統計的虛無假設是什麼? 結論是什麼?

CNO	Without	Headache	Total
1	567	221	788
2	266	226	492
3	372	214	586
4	301	161	462
5	497	244	741
Total	2003	1066	3069

Chi-Square Statistics Section

Chi-Square	44.670077
Degree of Freedom	?
Probability Level	<0.001

6. 統計一群人的身高(HEIGHT)和體重(WEIGHT)結果如下:(20%)

Correlation Matrix Section:

	HEIGHT	WEIGHT
HEIGHT	1.000000	0.484707
WEIGHT	0.484707	1.000000

- 6-1. 因為 HEIGHT 和 WEIGHT 都是連續變項(continuous variables), 所以上面的 correlation matrix 應該是用什麼方法?  
( \_\_\_\_\_ ? correlation, 請將答案標明題號, 直接填於答案卷上)
- 6-2. 進一步作迴歸分析結果如下: (請將答案標明題號, 直接填於答案卷上)

Regression Equation Section : (dependent variable – WEIGHT)

Independent variable	Regression coefficient	Standard error	T-Value	Prob
Intercept	-56.16	3.65	-15.39	<0.001
HEIGHT	0.70	2.29E-02	30.65	<0.001

R-Squared 0.234941

- 6-2-1. The null hypothesis ( $H_0$ ) of regression coefficient on HEIGHT is \_\_\_\_\_
- 6-2-2. Thus, based on the regression equation, if a worker got 7 cm higher, the weight would gain \_\_\_\_\_ kg.
- 6-2-3. The regression model could explain \_\_\_\_\_ % variance of WEIGHT among these workers.

1. Calculate the following : (每題 5 分, 共 20 分)
  - (1). Convert 100mg/dL of glucose to mmol/L. (mw=180)
  - (2). How many millimoles of NaCl are contained in 100 ml of a 2 M solution (mw = 58.5)
  - (3). Many grams of NaOH are contained in 500 ml. of a 2 M solution? (mw = 40)
  - (4). Prepare a 500 mL of a 1.5 N HCl solution. (specific gravity = 1.19, assay = 38% of concentrated HCl)
2. Define the following terms : (每題 5 分, 共 20 分)
  - (1). Sensitivity
  - (2). Specificity
  - (3). Efficiency
  - (4). Predictive value
3. Discuss analytical procedures used in the measurement of blood glucose. (10 分)
4. Describe analytical methods and clinical application for HDL-C and LDL-C. (10 分)
5. Describe proper sample collection procedures for TDM. (10 分)
6. Discuss pathophysiology of and laboratory findings in hyperthyroidism. (10 分)
7. A 9-month-old girl was seen by her pediatrician. At this visit she was noted to be somewhat dehydrated. (10 分)

## Laboratory Findings:

## Blood Gases

pH	7.28
pCO <sub>2</sub>	27
Creatinine	4.2 mg/dL
Sodium	138 mmol/L
Potassium	3.3 mmol/L
Chloride	103 mmol/L
Bicarbonate	12 mmol/L

## Urinalysis

pH	5.5
Glucose	3+
Protein	1+
Bilirubin	Negative
Urobilinogen	Normal
GFR	16 mL/min

- (1). Identify the abnormal laboratory findings.
- (2). Calculate the anion gap.

8. A 35-year-old woman is seen in the emergency room with persistent midepigastic pain of 8 hours' duration. (10 分)

Laboratory Findings:

Na	139 mmol/L
K	4.2 mmol/L
Cl	102 mmol/L
HCO <sub>3</sub> <sup>-</sup>	25 mmol/L
BUN	35 mg/dL
Glucose	132 mg/dL
Creatinine	1.6 mg/dL
AST	135 U/L
ALT	98 U/L
AMS	570 SU
CK	75 U/L

- (1). Identify the abnormal laboratory results.
- (2). Which of the following tests is considered the most sensitive for the diagnosis of acute pancreatitis?
  - a. Serum amylase
  - b. Serum lipase
  - c. Urine amylase
  - d. Amylase/creatinine clearance ratio
  - e. Amylase isoenzymes

1. 請寫出原發性非典型肺炎(Primary Atypical Pneumonia)致病菌之菌名, 菌株特性及分離培養時之生長特性及營養需求. (15%)
2. 請寫出抗酸性染色( acid-fast stain)之原理及其臨床應用. (10%)
3. 請寫出鵝口瘡(Thrush)之致病源, 及其分離鑑別之方法 (15%)
4. 何謂 STS, 請簡述臨床上可用以檢驗梅毒的血清學試驗 (15%)
5. 請簡述厭氧菌感染傷口時之臨床表徵. (10%)
6. 請簡述下列生化試驗管之反應原理
  - A. TSI agar (10%)
  - B. MIO semisolid agar (5%)
  - C. OF glucose medium (5%)
  - D. Urea agar (5%)
  - E. VP semisolid agar (5%)
  - F. CTA semisolid agar (5%)