

請務必於試卷紙上作答，違者該科不於計分。

I. Vocabulary: Choose the answer that best completes the sentence. (20%)

1. Having beautiful hair is such a sign of health and attractiveness, particularly for white women, because their hair tends to be very _____, and it needs extra care.
a. cybernetic b. wasted c. fragile d. sober
2. Three Americans are among those killed in a deadly _____ last week in Algeria to rescue hostages taken when Islamic militants overtook a gas facility.
a. raid b. inaugural c. coverage d. hug
3. Nehemiah Griego, who is 15, said he had _____ and suicidal thoughts before he grabbed a rifle from his parents' closet and shot his mother in her head.
a. responsible b. surgical c. homewards d. homicidal
4. Priests _____ of abuse were sent away for treatment, but often only after long delays, and many cases slipped under the radar.
a. suspected b. limited c. struck d. permitted
5. The number of kids _____ with attention deficit hyperactivity disorder (ADHD) rose 24 percent between 2001 and 2010.
a. riddled b. diagnosed c. forced d. regarded
6. _____ by the Kaiser Permanente Southern California Institute, the study differs from previous ones in that it offered a comprehensive look at medical records.
a. Caused b. Remained c. tolerated d. Conducted
7. "If there are people trying to do bad stuff to our guys, then we'll take them out of the game, I suppose," he said in one of several interviews _____ to the media.
a. petitioned b. emphasized c. released d. initiated
8. Two additional attackers, armed with automatic rifles, stormed the area and fought with security forces for nearly eight hours. The _____ killed three police officers and all five attackers.
a. election b. assault c. regulation d. display
9. British designer Mary Katrantzou is known for her _____ prints. Now an artist has reimagined them into vivid photographs.
a. reasonable b. merciful c. brutal d. extravagant
10. While many people appeared _____ last week by the news that the Los Angeles Lakers star and his wife had dropped their divorce action, those close to the couple say this was always the inevitable end for the two.
a. stunned b. charged c. instant d. gained

II. Sentence Completion: Choose the word that best completes the sentence (10%)

11. Hard work can make _____ for a lack of intelligence.
a. down b. in c. up d. out
12. A number of questions came _____ at the meeting.
a. of b. X c. for d. up
13. The drowning man called _____ vain for help.
a. in b. X c. at d. for
14. In _____ of his youth, the police have decided not to continue with the case against him.
a. find b. view c. note d. think
15. Guess who I bumped _____ today? It was Michael!
a. on b. into c. at d. for

III. Cloze Test: Choose the best answer for each missing word or phrase in the following passages (20%)

The Holkham Hebrew Bible, in a show of Jewish books and documents from the Bodleian Library in Oxford, now on view at the Jewish Museum in New York. The book was printed in Naples in 1491/2, by one Joshua Solomon Soncino. Not only is it _____ 16 _____, but it's poignant as well. The hand-colored decoration shows how fully its maker _____ 17 _____, and appreciative of, the Christian culture of the Italian Renaissance. (Identical decoration was used on a chivalric romance.) Yet at

this same time, Jews _____18_____ in vast numbers from Spain and were confined to ghettos in Italy. The _____19_____ and segregation made no cultural sense, but that didn't stop it _____20_____.

16. a. gorilline b. gorger c. gorgeously d. gorgeous
17. a. was immersing b. immersing c. was immersed in d. immerse
18. a. were being expelled b. expel c. was expelled d. was expelling
19. a. persecute to b. persecution c. persecute d. persecuting
20. a. from happening b. happen c. happened d. on happening

The foursome _____21_____ a fishing expedition over the holidays and were headed back to Italy to start the new year.

Missoni was expected to attend men's fashion week in Milan this week, but his plane disappeared from radar shortly _____22_____ from the island. At first glance, the _____23_____ seems like a standard air-to-sea accident, but the Missoni family is not yet ready to give up hope. "A plane _____24_____ in this way, on a short route, without leaving any trace," Missoni's 28-year-old son Ottavio told an Italian newspaper last week. "I _____25_____ that the least plausible reason is that they crashed into the water."

21. a. have b. had been on c. had been d. have been on
22. a. of taking b. after taking c. after take off d. after taking off
23. a. disappeared b. disappears c. disappearance d. disappear
24. a. cannot vanish b. is to vanish c. should vanish d. could be vanished
25. a. remain convinced b. convinced c. cannot convince d. am convince

IV. Written Expression: Identify the underlined word or phrase that must be changed in order for the sentence to be correct (14%).

26. a) The Los Angeles City Council voted b) unanimous last fall to c) build a new football stadium d) in the heart of downtown.
27. Experts say a) sports teams rarely b) regulate cities the economic growth c) that is initially d) expected.
28. 2012 has been a) an 'awful' year b) for c) major Wall Street companies, so what should we d) impact in 2013?
29. a) Bonus and salaries b) have been cut at c) all of the big Wall Street d) firms.
30. a) Instead just b) searching for content that already has its own page c) on Facebook—think fan pages, groups, or events—Graph Search will d) allow users to make much more specific searches.
31. Google's a) big shift in search has been to move away from b) display links and letting users c) go on their way and answer more questions d) directly through information in the Google universe.
32. a) It was an b) audaciously political speech, a statement of personal and c) partisan principle, d) rather the expected broad bipartisan outreach.

V. Reading Comprehension: Choose the best answers to the following questions (36%)

The word *euthanasia* is of Greek origin and literally means "a good death." The American Heritage Dictionary defines it as "the act of killing a person painlessly for reasons of mercy." Such killing can be done through active means, such as administering a lethal injection, or by passive means, such as withholding medical care or food and water.

In recent years in the United States, there have been numerous cases of active euthanasia in the news. They usually involve the deliberate killing of ill or incapacitated persons by relatives or friends who plead that they can no longer bear to see their loved ones suffer. Although such killings are a crime, the perpetrators are often dealt with leniently by our legal system, and the media usually portrays them as compassionate heroes who take personal risks to save another from unbearable suffering.

The seeming acceptance of active forms of euthanasia is alarming, but we face a bigger, more insidious threat from passive forms of euthanasia. Every year, in hospitals and nursing homes around the country, there are growing numbers of documented deaths caused by caregivers withholding life-sustaining care, including food and water, from vulnerable patients who cannot speak for themselves.

While it is illegal to kill someone directly, for example with a gun or knife, in many cases the law has put its stamp of approval on causing death by omitting needed care. Further, many states have "living will" laws designed to protect those who withhold treatment, and there have been numerous court rulings which have approved of patients being denied care and even starved and dehydrated to death.

Because such deaths occur quietly within the confines of hospitals and nursing homes, they can be kept hidden from the public. Most euthanasia victims are old or very ill, so their deaths might be attributed to a cause other than the denial of care that really killed them. Further, it is often relatives of the patient who request that care be withheld. In one court case, the court held that decisions to withhold life-sustaining care may be made not only by close family members but also by a number of

third parties, and that such decisions need not be reviewed by the judicial system if there is no disagreement between decision makers and medical staff. The court rules that a nursing home may not refuse to participate in the fatal withdrawal of food and water from an incompetent patient.

33. As used in paragraph 1, which is the best definition of “**lethal**”?

- a. proceeding in a gradual, subtle way
- b. referring to the effect or influence of one person, thing, or action
- c. sufficient to cause death
- d. referring to promptness or speed in doing something

34. As mentioned in paragraph 2, “the perpetrators are often dealt with leniently by our legal system” because

- a. the perpetrators are committing a crime
- b. the perpetrators are willing to stop their loved ones’ pain and bear the risk of being charged with killing
- c. the perpetrators are heroes who are filled with compassion and portrayed by the media
- d. the perpetrators involve the deliberate killing of ill or incapacitated persons

35. In paragraph 3, one faces “a bigger, more insidious threat from passive forms of euthanasia” since

- a. caregivers use active forms of euthanasia
- b. that caregivers withholding life-sustaining care is easier than using active forms of euthanasia
- c. food and water can involve in the deliberate killing of ill
- d. vulnerable patients accepts passive forms of euthanasia

36. In paragraph 4, “put its stamp of approval on” can be rewritten as

- a. have or express an unfavorable opinion about something
- b. have the same characteristics or qualities as
- c. be grateful for something
- d. officially agree to or accept as satisfactory

37. The author maintains that death by withholding care is

- A. largely confined to hospitals
- B. difficult to prove if prosecuted
- C. often requested by family members
- D. approved by living wills

38. The attitude of the author can best be described as

- a. objective
- b. partial
- c. passionate
- d. macaber

39. To conclude, euthanasia is a kind of

- a. Greek death
- b. dehydrated death
- c. merciful death
- d. unbearable suffering

In his thought-provoking work, *Philosophical Investigations*, Ludwig Wittgenstein uses an easily conceptualized scenario in an attempt to clarify some of the problems involved in thinking about the mind as something over and above the behaviors that it produces. Imagine, he says, that everyone has a small box in which they keep a beetle. No one is allowed to look in anyone else’s box, only in their own. Over time, people talk about what is in their boxes and the word “beetle” comes to stand for what is in everyone’s box.

Through this curious example, Wittgenstein attempts to point out that the beetle is very much like an individual’s mind; no one can know exactly what it is like to be another person or experience things from another’s perspective—look in someone else’s “box”—but it is generally assumed that the mental workings of other people’s minds are very similar to that of our own (everyone has a “beetle” which is more or less similar to everyone else’s). However, it does not really matter—he argues—what is in the box or whether everyone indeed has a beetle, since there is no way of checking or comparing. In a sense, the word “beetle”—if it is to have any sense or meaning—simply means “what is in the box”. From this point of view, the mind is simply “what is in the box”, or rather “what is in your head”.

Wittgenstein argues that although we cannot know what it is like to be someone else, to say that there must be a special mental entity called a mind that makes our experiences private, is wrong. His rationale is that he considers language to have meaning because of public usage. In other words, when we talk of having a mind—or a beetle—we are using a term that we have learned through conversation and public discourse (rooted in natural language). The word might be perceived differently in each of our minds, but we all agree that it signifies something; this allows us to develop language for talking about conceptualizations like color, mood, size and shape. Therefore, the word “mind” cannot be used to refer specifically to some entity outside of our individualized conception, since we cannot see into other people’s boxes.

40. According to the last paragraph, “the word “mind” cannot be used to refer specifically to some entity outside of our individualized conception” because

- a. there is no way of checking or comparing what is going on in another person’s mind
- b. Wittgenstein’s rationale is that a mind makes our experiences private
- c. one often looks in someone else’s “box”

- d. the word “mind” is an easily conceptualized scenario
41. Wittgenstein would most likely disagree with which of the following statements?
- A. It is impossible to know another person’s thoughts.
 B. The mind is a special mental substance.
 C. The color green may actually look different to everybody.
 D. Words do not always accurately represent the things they symbolize.
42. As used in paragraph 3, which is the best definition or synonym for **discourse**?
- A. information given via the senses of sight or hearing
 B. engagement
 C. announcement
 D. written or spoken communication
43. In paragraph 3, since a “word might be perceived differently in each of our minds”
- a. it is impossible for us to communicate
 b. one develops conceptualizations of various objects
 c. one has to study philosophy
 d. imagination is important in regard to thinking
44. In the first paragraph, “thought-provoking” means
- a. inspiring b. frustrating c. puzzling d. applicable
45. “Beetle” refers to
- a. things that are put in boxes
 b. everyone indeed has an insect in his head
 c. the mind that is comparable to a box
 d. Wittgenstein’s attempt to communication

SOME sage once quipped that writing about music is about as edifying—and evocative—as dancing about architecture. Certainly most music criticism has a lifeless quality, packed with adjectives yet tuneless on the page. Yet Alex Ross, a music critic for the *New Yorker*, manages to stand out. His gifts as a writer are all the more impressive given that his subject tends to be the most difficult music composed in the last century, from Gustav Mahler to Steve Reich.

“The Rest is Noise”, his best-selling 2007 book on the history of the 20th century through its music, is now being re-worked as a year-long music festival at the Southbank centre in London. Although Mr Ross was not involved in organising the festival, he will be giving four lectures on the history of 20th-century music.

Mr Ross spoke to *The Economist* about why he wrote this book in the first place, and why it is particularly hard to get contemporary audiences excited about modern music.

“It took you ten years to write “The Rest is Noise”. What was your motivation?”

“It emerged really from an obsession that I had with 20th-century music going back to my teenage years. At university I immersed myself in it very heavily with a radio show that I had. I was also studying literature and history—especially late-19th century and early-20th century period—so it all coalesced.”

“I grew up listening to classical music in the traditional sense, from Bach to Brahms. That was the world I was completely absorbed in. I really didn’t listen to any other kind of music aside from this repertory. So it was something of a shock to slowly realise that there was more to the story, and I was shocked and fascinated when my piano teacher in high school played works by Schoenberg, Berg and Bartok. I started making my way through them at the piano, and after an initial struggle, I really fell in love with the music. I was fascinated by the music itself, by the surrounding cultural and historical context, and wanted to figure out how it all fit together. So it seemed inevitable that this would be the subject.”

46. In the last paragraph, “coalesced” means
- a. merge b. distribute c. confuse d. discriminate
47. Most people think that music criticism is
- a. contributive b. useless c. harmful d. vivid
48. Alex Ross
- a. stands out playing music in a year-long music festival
 b. organize music festival related to Mahler and Reich
 c. gives lectures concerning the history of a certain period of music

d. studies literature and becomes a writer of novels

49. The **best** synonym for “immersed” is

a. fascinated b. persuaded c. extended d. absorbed

50. According to Ross, music

a. is an independent subject that does not involve its context

b. usually has a great story

c. always brings one struggle when one tries to play the piano

d. is deeply related to culture and history

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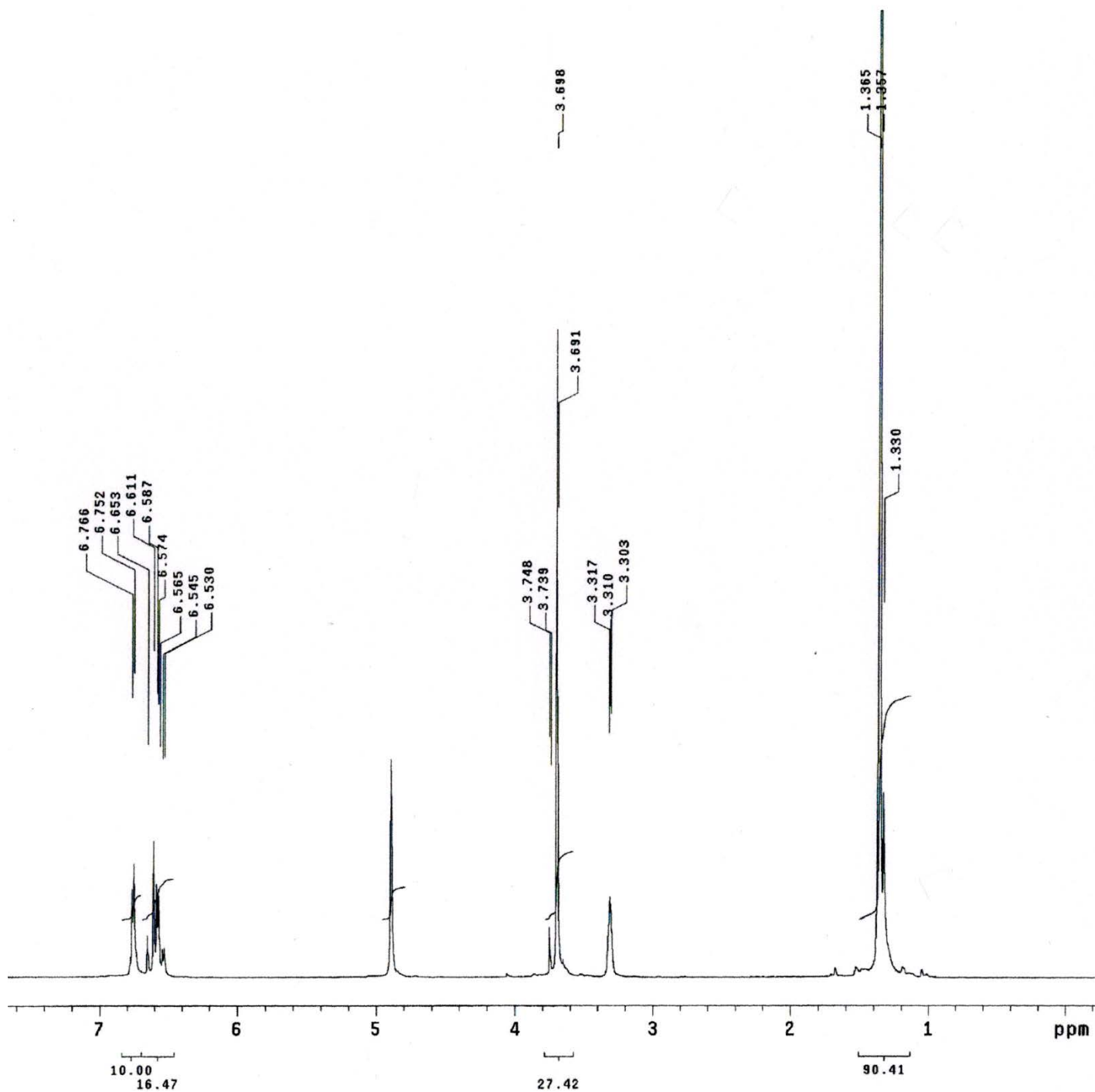
一、選擇題：每題 3 分

- 下列對於 transparent soap 的敘述，何者正確？
(A) 起泡性比一般香皂好 (B) 對皮膚刺激性高 (C) 添加 coconut oil 可以增加肥皂的透明感 (D) 加入 glycerin 會抑制皂基的結晶化
- 下列何種成分可以提供沐浴乳的外觀具有珍珠光澤？
(A) propylene glycol (B) triethanol amine lauryl sulfate (C) ethylene glycol monostearate (D) liquid paraffin
- 潤髮產品中，最主要達到潤絲(rinse)作用的成分為？
(A) zinc pyrithione (B) ammonium lauryl sulfate (C) cetrimonium chloride
(D) fatty acid amide
- 下列何種儀器是利用散射原理測定粒徑大小？
(A) 穿透式電子顯微鏡 (B) 粒徑分析儀 (C) 掃描式電子顯微鏡 (D) 以上皆可
- 請依照下列產品的配方判別該產品為何？
Tallow, coconut oil, castor oil, lauric acid, stearic acid, sodium hydroxide, glycerin, ethyl alcohol, sugar, EDTA-2Na
(A) 透明肥皂 (B) 防曬乳 (C) 護手霜 (D) 驅蟲劑
- Single 24-hour patch test 主要用來評估產品或原料的
(A) 塗覆性 (B) 安定性 (C) 有效性 (D) 安全性
- 下列何種條件會加速乳劑 creaming 的現象？
(A) 分散介質(dispersion medium)具有較高的黏稠度
(B) 分散相與分散介質兩者間的密度差異性小
(C) 粒子半徑大
(D) 以上皆是
- Which of the following most likely Newtonian liquids?
(A) Gel (B) Lotion (C) Paste (D) Emulsion
- 下列哪一個是 cationic surfactant?
(A) Sulfosuccinates (B) CTMAC (C) Sarcosinates (D) Ether carboxylates
- 下列哪一項是 Graft copolymer?
(A) **ABBABABB** (B) **ABABAB** (C) **AA.....BB** (D) **AAAAA**
B
B
- 目前市面上除皺所使用的 Botulinum toxin，其作用機轉為？
(A) 抑制 dopamin 的釋放 (B) 抑制 acetylcholine 的釋放 (C) 抑制 epinephrine 的釋放 (D) 促進 dopamin 的釋放 (E) 促進 acetylcholine 的釋放
- Kojic acid 美白機轉為何？
(A) 還原黑色素 (B) 破壞黑色素細胞 (C) 清除自由基 (D) 螯合銅離子，tyrosinase 失去活性
- Retinoids 對於角質細胞的作用何者正確？
(A) 減少角質細胞的分化 (B) 減少角質細胞間的附著力 (C) 減緩角質細胞的脫落 (D) 以上皆非
- 下列對於 melanin 的生成之敘述，何者錯誤？
(A) Melanin 可分為 pheomelanin 和 eumelanin，其中 pheomelanin 成現紅色或黃色，eumelanin 呈現黑色或棕色
(B) Tyrosinase 在銅離子的作用下，會將 dopa 氧化變成 tyrosine
(C) 皮膚表皮基底層中的 melanocyte 為製造 melanin 的場所
(D) Pheomelanin 和 eumelanin 為決定皮膚顏色的重要關鍵
- 造成雄性禿主要原因是毛囊裡何種成分過高？
(A) estrogen (B) testosterone (C) dihydrotestosterone (D) dehydroepiandrosterone

二、問答題(請詳細作答說明)：

- 1.一般粧廠內之例行性品管所進行乳化產品之安定性測試有哪些？並請詳加說明。(6%)
- 2.彩粧產品中常用許多種粉體，請介紹粉體之滅菌方法。(6%)
- 3.藥粧之禁限用成分常用 Liquid Chromatography (LC)分析，請敘述其原理並繪出儀器配置圖。(6%)
- 4.試說明乳化過程中界面活性劑扮演之角色以及作用機轉為何。(6%)
- 5.試繪圖說明如何藉由 Degree of Shear thinning 判別流體之安定性(6%)
- 6.以示差熱分析(differential thermal analyses)時，發現材料之結晶溫度會隨著升溫速率的增加而使結晶溫度升高，請問此現象是因何種原因而造成？試說明之(6%)
- 7.某一化粧品工廠想要設計一個以正方形為底，表面積為 108 cm^2 的開口紙盒，請問該如何設計，才會有最大的體積？(7%)

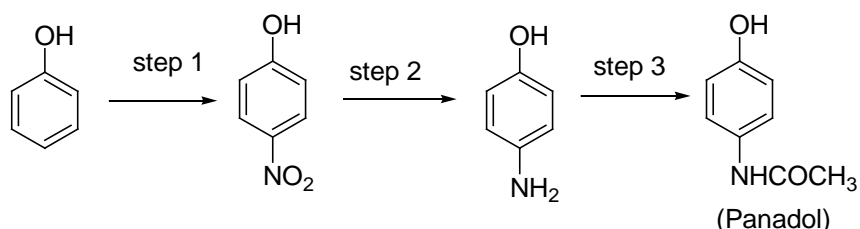
8. 下列為一常見抗氧化劑之氫光譜圖(200 MHz, methanol-d₄)，已知其分子式為 C₁₁H₁₆O₂。紅外線光譜圖中於 3400 及 1612 cm⁻¹ 有特徵吸收，請依上述及氫光譜圖回答下列問題：



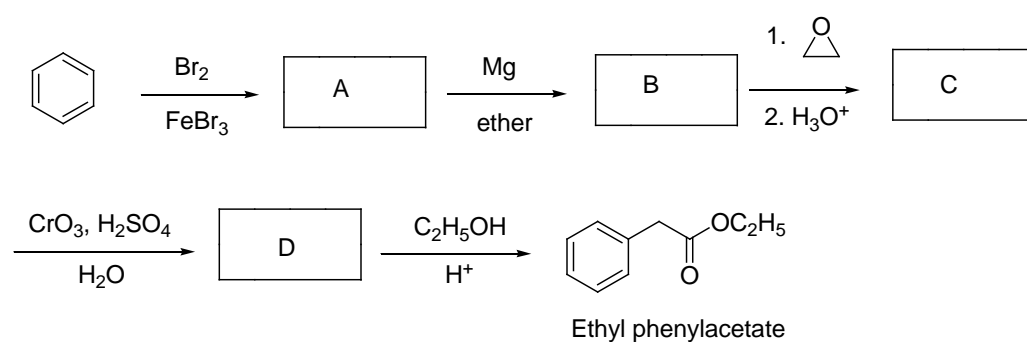
- 紅外線光譜圖中 3400 及 1612 cm⁻¹ 是各指何種官能基的吸收？(6%)
- 請畫出此抗氧化劑的結構，並指明各質子之化學位移為何？(6%)

請務必於試卷紙上作答，違者該科不於計分。

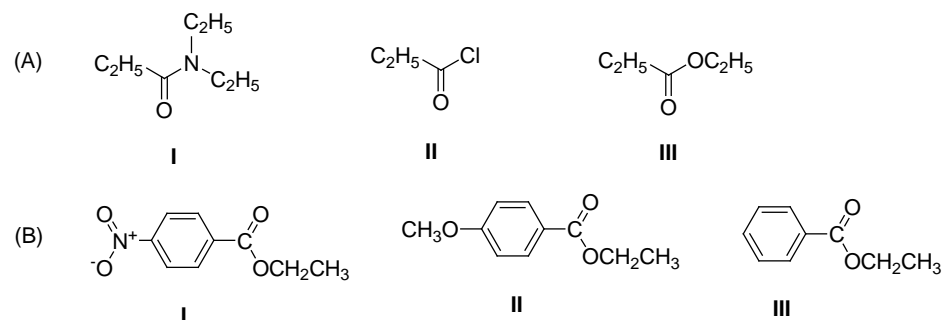
1. Acetaminophene (trade name, panadol) an antipyretic analgesics can be synthesized through the following reactions. Give the reagent(s) for each step (9%)



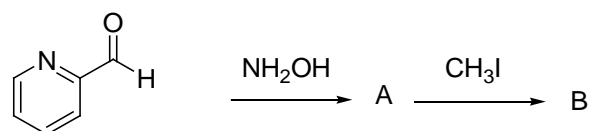
2. Ethyl phenylacetate, a pleasant smelling compound used in perfumery. Give structure for each intermediate in the blank (A-D) for the synthesis of ethyl phenylacetate (12%)



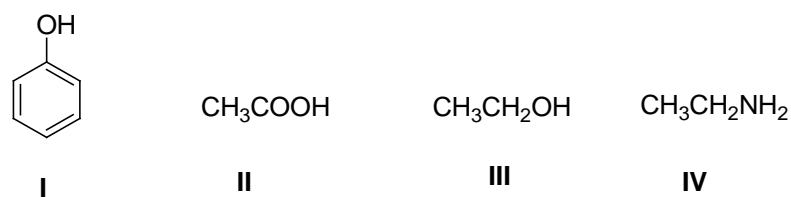
3. What is the order of *decreasing* reactivity towards nucleophilic acyl substitution for the carboxylic acid derivatives? (most reactive first) (6%)



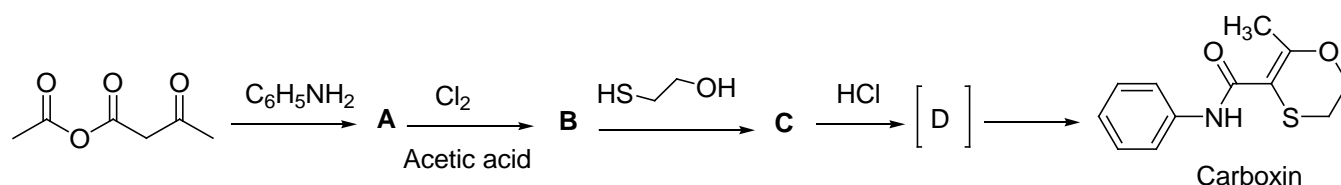
4. Pralidoxime iodide (B) is a general antidote for poisoning by many insecticides. The drug is made in two steps starting with pyridine-2-carbaldehyde. What is the structure of A and B? (6%)



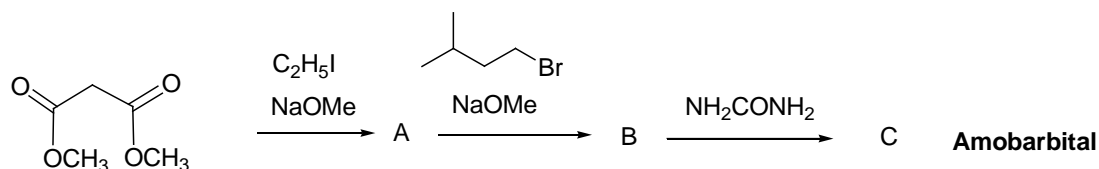
5. Rank the following compounds in order of *decreasing* acidity? (most acidity first) (6%)



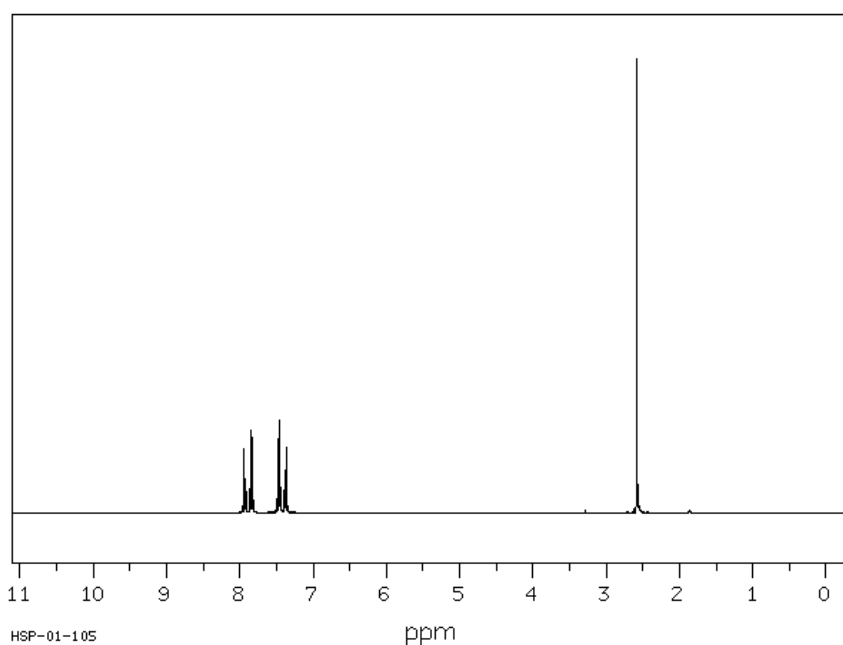
6. Carboxin, marketed as Vitavax, is a fungicide used on corn and wheat. A synthesis of carboxin is shown: What is the structure of **A**, **B**, **C**, and **D**? (12%)



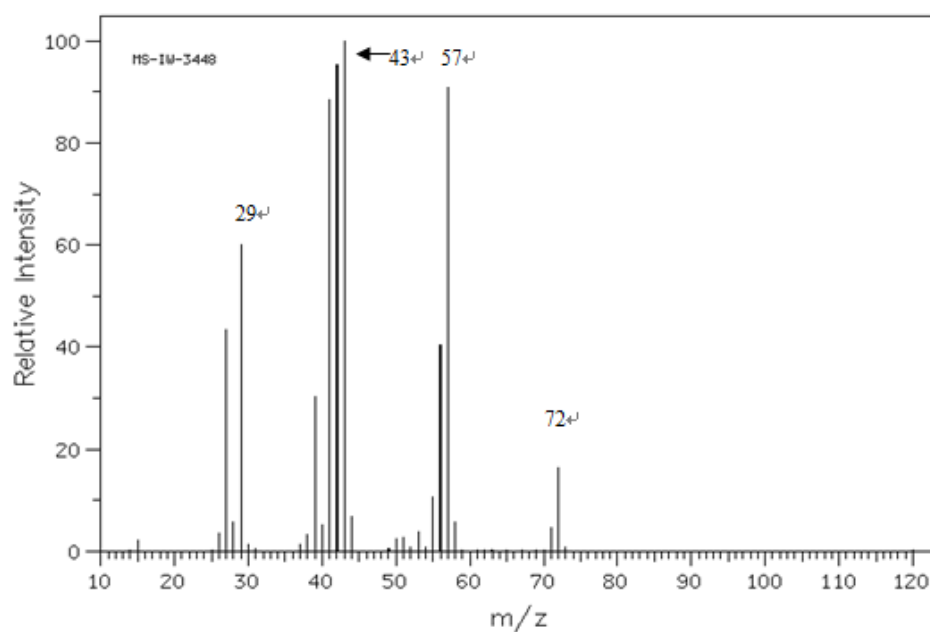
7. Amobarbital, a hypnotic and sedative drug, can be synthesized by following sequential reactions. What is the structure of **A**, **B**, **C**? (9%)



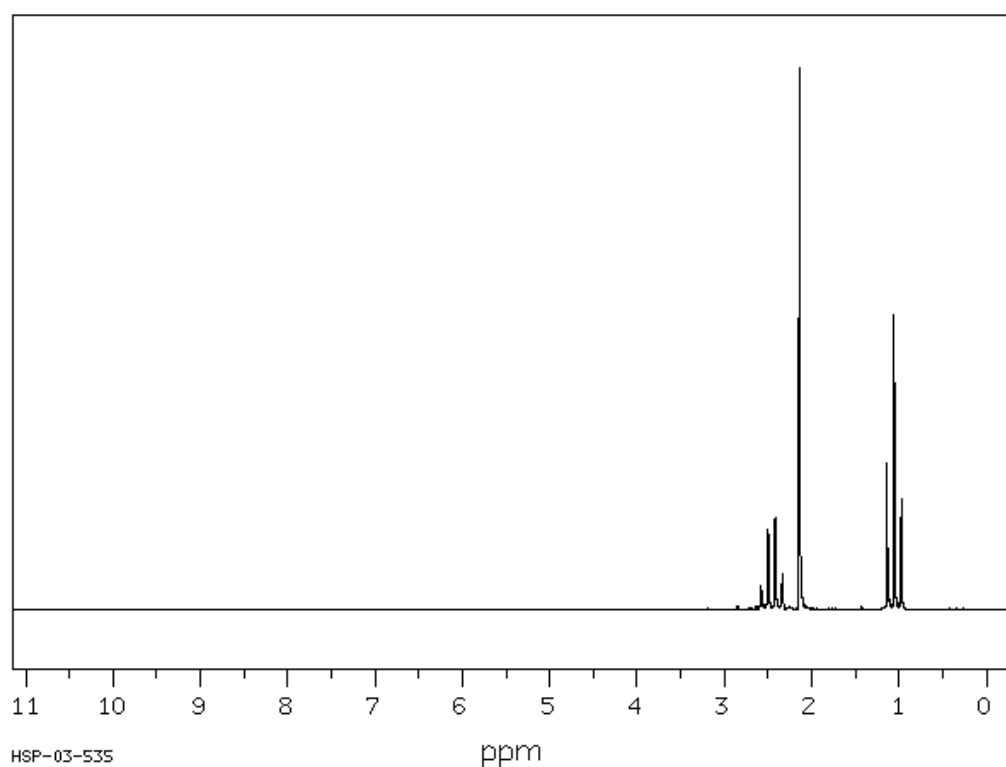
8. Propose structure for compound ($\text{C}_8\text{H}_9\text{Br}$) that fit the following $^1\text{H-NMR}$ data: δ 2.0 (3H, d, $J = 7$ Hz); δ 5.0 (1H, q, $J = 7$ Hz); δ 7.3 (5H, s). (5%)
9. A compound, molecular formula $\text{C}_8\text{H}_7\text{ClO}$, has $^1\text{H-NMR}$ spectrum shown below. Propose a structure for this compound (5%)



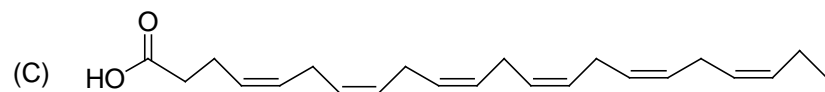
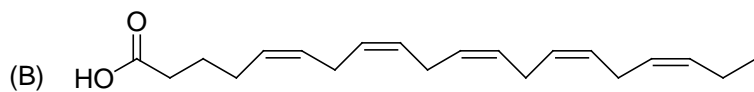
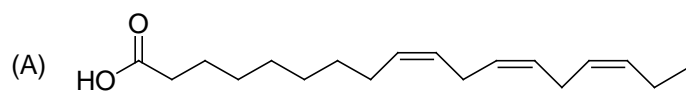
10. Refer to the mass spectrum of 2-methylbutane shown below to answer the following questions. (a) What peak represents M^+ ? (b) What peak represents the base peak? (c) Propose structures for fragment ions at $m/z = 57$, 43, and 29. (10%)



11. A compound, molecular formula C_4H_8O , has 1H -NMR spectrum shown below. Propose a structure for this compound (5%)

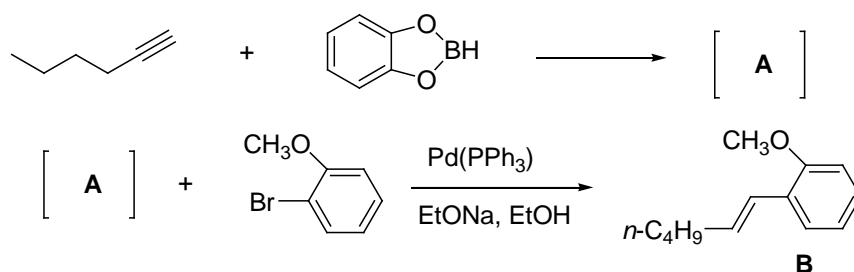


12. Refer to the structures of ω -3 fatty acids (A,B,C) shown below to answer the following questions. (a) What position in the carbon chain of A, B, and C represents ω -3? (b) What is the structure of EPA? (c) What is the structure of DHA? (6%)



13. Draw a separation flow sheet to show how to isolate each compound from a mixture of A + B + C. [A = benzoic acid, B = aniline, C = isobutyl benzene] (6%)

14. The reaction of *n*-hexyne with catecholborane yields A which is followed to react with *o*-methoxybromobenzene in the presence of $Pd(PPh_3)_4$ and sodium ethoxide to yield B. What is the structure of A? (3%)



高雄醫學大學 102 學年度 研究所碩士班 招生考試 系所：天然藥物研究所、化粧品學系碩士班
科目：生物化學(一般生化)

請務必於試卷紙上作答，違者該科不於計分。

請務必標示題號。

一、說明下列物質的角色或功能：20% (每題 4 分)

1. cAMP
2. Serotonin
3. Phosphocreatine
4. NADPH
5. Ketone body

二、解釋名詞：30% (每題 3 分)

1. Allosteric regulation
2. Cancer stem cells
3. Apoptosis
4. Lipid raft
5. Glucosamine
6. ATP synthase
7. Glucose-alanine cycle
8. Okazaki fragment
9. Sedimentation coefficient
10. Abzyme

三、簡答題：50 %

1. 畫出並註解 lac operon 的組成，並簡述其 positive and negative control。(12 %)
2. 請舉出 4 個生物間的非共價鍵交互作用力。(4 %)
3. 人類全身共有大約 (A) 個細胞組成;人類的基因大概有 (B) 個;大腸桿菌的基因組(genome)大概有 (C) bp。(6 %)
4. 列舉 4 個參與 Urea cycle 的重要氨基酸及其角色。(8 %)
5. 請簡述以下抗生素 ampicillin, chloramphenicol, cycloheximide, actinomycin D 在分子生物學上的應用。(12 %)
6. 肝癌是台灣的國病，請試以中草藥研究的角度討論其發展藥物的優勢及缺點。(8 %)