

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

請務必於試卷紙上作答，違者該科不於計分。

1. 試述直接數位 X 光照像(direct digital radiography)及間接數位 X 光照像(indirect digital radiography)的成像原理。(10%)
2. 診斷 X 光攝影時穿的鉛衣使用鉛為材質的原因為何?如何得知鉛衣是否有龜裂?(10%)
3. 若電腦斷層影像系統有 7.5 lp/cm 的空間頻率，這表示可以看到物體大小的解析度為多少 mm?(5%)
4. 電腦斷層影像中，(A)量子斑駁(quantum noise)是如何產生的?(B)如何使用水假體來測量雜訊(noise)?(5%)
5. 執行磁共振造影時，有那些關於病人的安全議題是需要注意與提醒病人的?(5%)
6. 使用傳統自旋回聲(conventional spin echo)進行磁共振造影時，改變什麼參數可以增加影像的訊雜比(signal to noise ratio)?(5%)
7. 乳房攝影，(A)使用鉬靶有什麼優缺點?(B)什麼情況下會增加 OID(object to image distance)?(5%)
8. 執行超音波掃描時，為什麼要在皮膚上塗凝膠 (gel)?(5%)
9. 放射治療時,那些因素會影響病人定位的精準度?如何可以提高定位的精準度?(5%)
10. 加瑪刀(Gamma knife)和電腦刀(Cyberknife)有什麼不同?(5%)
11. 質子治療有什麼優點?(5%)
12. 試述百分深度劑量 (Percentage Depth Dose, PDD)及組織與空氣比(Tissue-Air Ratio, TAR)的定義。(5%)
13. 放射治療時,使用組織填充物 (bolus) 的目的為何?(5%)
14. 試寫出迴旋加速器產生 F-18 的核反應式? F-18 以什麼方式產生衰變?為什麼臨床上 F-18 較 C-11 常用?為什麼 ^{18}F -FDG 會較多累積在腫瘤處?(10%)
15. $^{99\text{m}}\text{Tc}$ sulfur colloid 和 $^{99\text{m}}\text{Tc}$ -MAA 分別用於什麼檢查? $^{99\text{m}}\text{Tc}$ 是如何產生的? 99 及 m 分別代表什麼物理意義?(10%)
16. 1 mCi ^{131}I 含有多少個原子?經過 16 天後，活性變成多少 Bq? ^{131}I 原子剩下幾個?(半衰期為 8 天)(5%)