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堅強授課師資陣容

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- ★讀懂文章深層邏輯，逆向取非法，破解推論與邏輯難題！
- ★完整解析必考三大文體：議論文論點敘述型、發展/推理過程型、原因結果型、分類列舉型、比較對比型、時間順序型、攻擊對方觀點型、評論文、問題解決ESSAY。
- ★閱讀題型完整分類解析，徹底掌握破題關鍵與題目設計陷阱：主旨題、推論題、改善題、邏輯應用題、態度題、目的題、選句題。

GRE領航者PTT GRE創版版主『麟渡兮老師』

- ★研究GRE字彙多年，撰寫『GRE字彙精解專欄』深獲廣大學員們好評。
- ★親授新GRE高階字彙、深層解析GRE難字字源、例句、用法、英英釋義。
- ★因應新GRE同義字題型，採用“同義意群”與“學科分類”教授，有效時間掌握高頻字彙。
- ★獨家解析最權威韋氏字典英英釋義、此內容為新GRE高分必備掌握關鍵。
- ★解析填空題十大邏輯關係推導心法。
- ★親授填空難句黃金句型，而非死背規則，帶領同學秒殺填充題。

GRE邏輯推理與數學達人『王祥老師』

- ★多年鑽研GRE邏輯推理及計量題型，課堂中將完整教授獨門解題心法。
- ★快速破解必考邏輯、計量題型，課中講解活潑速效、一點就通！
- ★徹底掌握難題考點及陷阱，趨勢分析新GRE考生8大錯誤，答題正確率立即提昇！

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- ★獨家提供ISSUE & ARGUMENT主題分類題庫，針對各主題擬定寫作策略。
- ★獨家傳授ISSUE黃金構思技巧 & 各段論證寫作核心句型。
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- ★英文修辭寫作句型技巧訓練，讓您下筆時不再只有101種句型。

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Jasmine 陳 324分

Jessica 林 322分

Eve 王 321分

Wan-Yun 何 321分

Heidi 許 320分

Yunnjyy 蘇 320分

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字神帝國 GRE 高頻閱讀機經專題課程

康老師整理：GRE 舊真題對照表

份數	NO.題	年份	BB	數學	閱讀 1		閱讀 2		聖元填空	
1	2.1	8401			長	短	長	短		
2	2.2	8402			長	短	長	短		
3	2.3	8403			長	短	長	短		
4	3.1	8501			長	短	長	短		
5	3.2	8502			長	短	長	短		
6	3.3	8503			長	短	長	短		
7	4.1	8601	B25		長	短	長	短	1	2
8	4.2	8602	B18		長	短	長	短	3	4
9	4.3	8603	B07		長	短	長	短	5	6
10	5.1	8704	B24		長	短	長	短	7	8
11	5.2	8705	B17		長	短	長	短	9	10
12	5.3	8706	B06		長	短	長	短	11	12
13	6.1	8807	B23		長	短	長	短	13	14
14	6.2	8808	B16		長	短	長	短	15	16
15	6.3	8809	B05		長	短	長	短	17	18
16	7.1	8910	B22		長	短	長	短	19	20
17	7.2	8911	B15		長	短	長	短	21	22
18	7.3	8912	B04		長	短	長	短	23	24
19	8.1	9013	B21		長	短	長	短	25	26
20	8.2	9014	B14		長	短	長	短	27	28
21	8.3	9015	B03		長	短	長	短	29	30
22	9.1	9016	B27		長	短	長	短	31	32
23	9.2	9117	B20		長	短	長	短	33	34
24	9.3	9118	B13		長	短	長	短	35	36
25	9.4	9119	B11		長	短	長	短	37	38
26	9.5	9201	B09		長	短	長	短	39	40
27	9.6	9202	B02		長	短	長	短	41	42
28		9004	B08		長	短	長	短	43	44
29		9010	B01		長	短	長	短	45	46
30		9102	B26		長	短	長	短	47	78
31		9104	B19		長	短	長	短	49	50
32		9110			長	短	長	短	51	52
33		9202	B12		長	短	長	短	53	54
34		9204			長	短	長	短	55	56
35		9210			長	短	長	短	57	58
36		9302			長	短	長	短	59	60
37		9304			長	短	長	短	61	62
38		9310			長	短	長	短	63	64
39		9402			長	短	長	短	65	66
40		9404			長	短	長	短	67	68
41		9410			長	短	長	短	69	70
42		9504			長	短	長	短	71	72
43		9510			長	短	長	短	73	74
44		9604			長	短	長	短	75	76
45		9604N			長	短	長	短	752	762
46		9610			長	短	長	短	77	78
47		9704			長	短	長	短	79	80
48		9711			長	短	長	短	81	82
49		9804			長	短	長	短	83	84
50		9811			長	短	長	短	85	86
51		9904			長	短	長	短	87	88
54		舊 PP2			長 37 篇		短 45 篇		150 題	



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一、美國憲法第十四修正案

標題	文體類型	文章內容與解析	考試日期
美國憲法第十四修正案	敘述文	1868 年美國的 fourteenth constitution amendment 裡提倡美國公民人人平等，但這個 amendment 發行後的 80 年內，最高法院在對待黑人權益上仍存在種族歧視。於是一批人實行了 act 以抗議這種不平等，要求法院應按照獨立宣言裡的平等原則行事。到二戰之後，法院終於有了妥協。 題目：這個修正案的支持者關心什麼。	(201208) (201206) (201205) (199410)

The Fourteenth Amendment to the United States Constitution, ratified in 1868, prohibits state governments from denying citizens the “equal protection of the laws.” Although precisely what the framers of the amendment meant by this equal protection clause remains unclear, all interpreters agree that the framers’ immediate objective was to provide a constitutional warrant for the Civil Rights Act of 1866, which guaranteed the citizenship of all persons born in the United States and subject to United States jurisdiction. This declaration, which was echoed in the text of the Fourteenth Amendment, was designed primarily to counter the Supreme Court’s ruling in *Dred Scott v. Sandford* that Black people in the United States could be denied citizenship. The act was vetoed by President Andrew Johnson, who argued that the Thirteenth Amendment, which abolished slavery, did not provide Congress with the authority to extend citizenship and equal protection to the freed slaves. Although Congress promptly overrode Johnson’s veto, supporters of the act sought to ensure its constitutional foundations with the passage of the Fourteenth Amendment.

The broad language of the amendment strongly suggests that its framers were proposing to write into the Constitution not a laundry list of specific civil rights but a principle of equal citizenship that forbids organized society from treating any individual as a member of an inferior class. Yet for the first eight decades of the amendment’s existence, the Supreme Court’s interpretation of the amendment betrayed this ideal of equality. In the *Civil Rights Cases* of 1883, for example, the Court invented the “state action” limitation, which asserts that “private” decisions by owners of public accommodations and other commercial businesses to segregate their facilities are insulated from the reach of the Fourteenth Amendment’s guarantee of equal protection under the law.

After the Second World War, a judicial climate more hospitable to equal protection claims culminated in the Supreme Court’s ruling in *Brown v. Board of Education* that racially segregated schools violated the equal protection clause of the Fourteenth Amendment. Two doctrines embraced by the Supreme Court during this period extended the amendment’s reach. First, the Court required especially strict scrutiny of legislation that employed a “suspect classification,” meaning discrimination against a group on grounds that could be construed as racial. This doctrine has broadened the application of the Fourteenth Amendment to other, nonracial forms of discrimination, for while some justices have refused to find any legislative classification other than race to be constitutionally disfavored, most have been receptive to arguments that at least some nonracial discriminations, sexual discrimination in particular, are “suspect” and deserve this heightened scrutiny by the courts. Second, the Court relaxed the state action limitation on the Fourteenth Amendment, bringing new forms of private conduct within the amendment’s reach.



1. Which of the following best expresses the author's attitude with regard to the Supreme Court's interpretations of the Fourteenth Amendment prior to the Second World War? (新 G 題)
 - (A) Contempt for the Court's cold rationality
 - (B) Disapproval of the Court's subversion of the amendment
 - (C) Skepticism concerning the appropriateness of the Court's close reading of the amendment
 - (D) Satisfaction that the Court acted with appropriate intentions with regard to the amendment
 - (E) Bitterness about the irreparable harm done to civil rights by the Court

2. The author implies that the Fourteenth Amendment might not have been enacted if (新 G 題)
 - (A) Congress' authority with regard to legislating civil rights had not been challenged
 - (B) the framers had anticipated the Supreme Court's ruling in *Brown v. Board of Education*
 - (C) the framers had believed that it would be used in deciding cases of discrimination involving non-racial groups
 - (D) most state governments had been willing to protect citizens' civil rights
 - (E) its essential elements had not been implicit in the Thirteenth Amendment

3. The author implies that the actions of the Supreme Court in the years immediately following the passage of the Fourteenth Amendment demonstrate that the Court at that time
 - (A) was frustrated by the lack of detail in the amendment
 - (B) intentionally rejected the broad possibilities for advancements in civil rights that the amendment offered
 - (C) applied the amendment in areas that the framers would have considered inappropriate
 - (D) disagreed with President Andrew Johnson about the need for the amendment
 - (E) provided the foundation on which subsequent Supreme Courts were able to expand civil rights

4. According to the passage, which of the following specifically provided for the citizenship of persons born in the United States?
 - (A) The Civil Rights Act of 1866
 - (B) The Thirteenth Amendment
 - (C) *Dred Scott v. Sandford*
 - (D) *Brown v. Board of Education*
 - (E) The *Civil Rights Cases* of 1883



5. Which of the following best describes the main idea of the passage?
- (A) By presenting a list of specific rights, framers of the Fourteenth Amendment were attempting to provide a constitutional basis for broad judicial protection of the principle of equal citizenship.
 - (B) Only after the Supreme Court adopted the suspect classification approach to reviewing potentially discriminatory legislation was the applicability of the Fourteenth Amendment extended to include sexual discrimination.
 - (C) Not until after the Second World War did the Supreme Court begin to interpret the Fourteenth Amendment in a manner consistent with the principle of equal citizenship that it expresses.
 - (D) Interpreters of the Fourteenth Amendment have yet to reach consensus with regard to what its framers meant by the equal protection clause.
 - (E) Although the reluctance of judges to extend the reach of the Fourteenth Amendment to nonracial discrimination has betrayed the principle of equal citizenship, the Supreme Court's use of the state action limitation to insulate private activity from the amendment's reach has been more harmful.
6. The passage suggests that the principal effect of the state action limitation was to
- (A) allow some discriminatory practices to continue unimpeded by the Fourteenth Amendment
 - (B) influence the Supreme Court's ruling in *Brown v. Board of Education*
 - (C) provide expanded guidelines describing prohibited actions
 - (D) prohibit states from enacting laws that violated the intent of the Civil Rights Act of 1866
 - (E) shift to state governments the responsibility for enforcement of laws prohibiting discriminatory practices
7. The author's position regarding the intent of the framers of the Fourteenth Amendment would be most seriously undermined if which of the following were true?
- (A) The framers had anticipated state action limitations as they are described in the passage.
 - (B) The framers had merely sought to prevent discriminatory acts by federal officials.
 - (C) The framers were concerned that the Civil Rights Act of 1866 would be overturned by the Supreme Court.
 - (D) The framers were aware that the phrase "equal protection of the laws" had broad implications.
 - (E) The framers believed that racial as well as non-racial forms of discrimination were unacceptable.
8. According to the passage, the original proponents of the Fourteenth Amendment were primarily concerned with (新 G 題)
- (A) detailing the rights afforded by the principle of equal citizenship
 - (B) providing support in the Constitution for equal protection for all citizens of the United States
 - (C) closing a loophole that could be used to deny individuals the right to sue for enforcement of their civil rights
 - (D) asserting that the civil rights protected by the Constitution included nonracial discrimination as well as racial discrimination
 - (E) granting state governments broader discretion in interpreting the Civil Rights Act of 1866



9. According to the passage, which of the following most accurately indicates the sequence of the events listed below?
- I. Civil Rights Act of 1866
 - II. Dred Scott v. Sandford
 - III. Fourteenth Amendment
 - IV. Veto by President Johnson
- (A) I, II, III, IV
(B) I, IV, II, III
(C) I, IV, III, II
(D) II, I, IV, III
(E) III, II, I, IV
10. Which of the following can be inferred about the second of the two doctrines referred to in the passage?
- (A) It caused some justices to rule that all types of discrimination are prohibited by the Constitution.
(B) It shifted the focus of the Supreme Court from racial to nonracial discrimination.
(C) It narrowed the concern of the Supreme Court to legislation that employed a suspect classification.
(D) It caused legislators who were writing new legislation to reject language that could be construed as permitting racial discrimination.
(E) It made it more difficult for commercial businesses to practice racial discrimination.

答案: BABACABBDE



二、黑人文學：紫色姐妹花

標題	文體類型	文章內容與解析	考試日期
黑人文學： 紫色姐妹 花	長閱讀 評論文 2	<p>文藝作品： Alice walkers: <i>The Color Purple</i> 紫色姐妹花 (1982)</p> <p>第一段評論 A:</p> <p>妹妹 Nettie 寫給他姐姐 Celie 的一封信(第一個題)說這個信很寫實, 相比這個 Celie 寫給 God 的信而言, 有些學者認為這個文章很寫實, 然後有些人認為是虛構的。即書中對上帝 God 的通信不屬於原來的 realism 流派(other than Anglo-American nineteenth-century realism) 而屬於 Afro-American literature. 但他對 voice 的 focus 沒有幫助他分析小說的 structure, 而這個 structure 是作者關注的重點。</p> <p>第二段評論 B 對 A 進行評論:</p> <p>大量敘述這個黑人小說是虛構的(第二個題二段作用)新觀點中提到的 critic 評論家 (Henry Louis Gates, Jr.)通過分析 voice (對話) 得到一些有用結論, 認為這部小說不能用 19th 的 stereotype 去解釋。JM 並認為這部小說如何與它所 acknowledged 受到影響的 19th 的兩部小說(她們眼望蒼天 <i>Their Eyes Were Watching God</i>)的 voice 一脈相承。這反映了用 19th stereotype 去解釋這部小說的不可靠。</p> <p>第三段評論 B 的敘述:</p> <p>敘述這個黑人小說。。。大概就是也許寫實吧</p> <p>第四段: Meager 認為這個小說, 是虛構的。最後一個題是問你這個 Meager 的觀點對應於第一段中哪一個學者的觀點。</p> <p>題目: 問了這個 critic(Henry Louis Gates, Jr.)和舊觀點中的 critic 有什麼相同, 我選的是他沒有分析小說的 structure。</p> <p>題目: 問的作者認為 Nettie 的 letter to Celie 有什麼特點, 我選了 mark a shift to geologically and culturally removed surroundings。</p>	(201208) (201207) (201204) (201201) (201112) (201109)

GRE 文學閱讀有時重點會放在: STRUCTURE 結構派 VS. FEELING 感情派

結構派: 主張文學僅有感情是不夠, 需要有連貫一致的寫作結構。常見字 ration, laws, method, composition, plotting, form

感情派: 主張文學作品應重情感內涵: 常見字 intuition, imagination, emotion。

Alice walkers: *The Color Purple* 紫色姐妹花 (1982)

Zora Neale Hurston's: *Their Eyes Were Watching God* 她們眼望蒼天(1937)

愛麗絲·沃克 (Alice Walker):

1944 年出生於南方佐治亞州的一個佃農家庭, 父母的祖先是奴隸和印度安人, 愛麗絲是家裡八個孩子中最小的一個。愛麗絲 8 歲時, 在和哥哥們玩“牛仔與印度安人”的遊戲時被玩具槍射瞎了右眼。1961 年愛麗絲獲獎學金入亞特蘭大的斯帕爾曼大學學習, 正趕上美國民權運動的高漲時期, 她即投身於這場爭取種族平等的政治運動。1962 年, 愛麗絲·沃克被邀請到馬丁·路德·金的家裡做客。1963 年愛麗絲到華盛頓參加了那次著名的遊行, 與千萬黑人一同聆聽馬丁·路德·金“我有一個夢想”的講演。愛麗絲大學畢業前在東非旅行時懷孕, 當時流產仍屬非法, 她經歷了一段想要自殺的痛苦時期, 同時也寫下了一些詩歌。1965 年愛麗絲大學畢業後回到了當時是民權運動中心的南方老家繼續參加爭取黑人選舉權的運動。在活動中愛麗絲遇上了猶太人列文斯爾, 兩人



克服跨種族婚姻的重重困難結為“革命伴侶”，愛麗絲再一次懷孕，但不幸的是在參加馬丁·路德·金的葬禮時因悲傷而痛失孩子。1972年愛麗絲到威爾斯利大學任教，開設了“婦女文學”課程，這是美國大學最早開設的女性研究課程。愛麗絲給學生介紹了大量黑人女作家，尤其是在此過程中發掘並整理了黑人女性文學先行者左拉·尼爾·赫斯頓（Zora Neale Hurston, 1891—1960）的材料。赫斯頓是30年代哈萊姆文藝復興時期的黑人女作家，其代表作為《*Their Eyes Were Watching God* 她們眼望蒼天》（1937），但因其作品中所體現出對黑人生活及傳統的積極、樂觀態度而在抗議文學風靡的時代備受冷落。左拉·尼爾·赫斯頓和愛麗絲·沃克是20世紀非裔美國文學中兩位重要的女性作家。左拉·尼爾·赫斯頓堪稱美國黑人女性文學史上最重要的先驅。她是第一位以黑人婦女為主人公，並以表現黑人婦女追求自我、爭取解放為主題的黑人女作家。她對20世紀許多著名黑人女作家如格洛麗婭·內勒、托尼·莫里森、愛麗絲·沃克等等都產生過深遠的影響。特別是其中的愛麗絲·沃克，她將赫斯頓視為自己的“文學母親”。她尋找和發掘了在文學史中幾乎被埋沒的赫斯頓，並積極地繼承和發展了赫斯頓留下的黑人女性文學遺產。1982年是愛麗絲·沃克的事業巔峰期，她發表了小說《紫色姐妹花》（*The Color Purple*）。《紫色》1983年一舉拿下代表美國文學最高榮譽的三大獎：普利策獎、美國國家圖書獎、全國書評家協會獎。1985年著名導演斯皮爾伯格將其拍成電影，當電影在艾麗斯的家乡上演時，愛麗絲受到了家鄉人的盛大歡迎。《紫色》從此成為美國大學中黑人文學與婦女文學的必讀作品。

紫色姐妹花 *The Color Purple*:

大約在20世紀初到第二次世界大戰前夕，背景是美國南方佐治亞鄉村。十四歲的黑人女孩 **Celie 西麗** 被後父姦淫，生下兩個孩子。多病的母親不瞭解真相活氣死了。她的孩子被後父搶走失蹤，她本人又被迫嫁給已有四個孩子的鰥夫。丈夫另有所愛，對她百般虐待，而她受舊思想舊習俗的影響只是自歎命苦，從不反抗，只在給上帝寫的信裡傾訴內心的痛苦。她對丈夫毫無感情，甚至不願意叫他的名字，只稱他為某某先生。善良的西麗發現後父和丈夫都對妹妹 **耐蒂 Nettie** 不懷好心，便幫助她離家出走。另一方面，她任勞任怨地把丈夫前妻的兒女撫養成人。大兒子哈波結婚以後，想像父親那樣使喚打罵老婆，但兒媳婦索菲亞生性倔強，不肯對丈夫俯首貼耳唯命是從，在生了好幾個孩子以後還是離開了哈波。西麗丈夫以前的情人，歌唱家 **莎格 Shug** 患重病流落街頭。某某先生把她接到家裡，她在西麗的精心護理下恢復了健康，兩人成了知心朋友。莎格開導西麗要充分認識自己的聰明才智，要跟大男子主義思想作鬥爭，主動爭取女人應有的權利。莎格的啟發開闊了西麗的眼界，她開始用新的眼光觀察世界、考慮問題。後來，莎格發現西麗的丈夫一直把耐蒂從非洲寫來的信件秘密收藏起來不讓她知道。西麗在憤怒之餘決定脫離某某先生，跟莎格去孟菲斯。她走出家庭學習縫紉，成為手藝精湛的裁縫，開起裁縫鋪，過上了獨立自主的生活。某某先生經過痛苦的思想鬥爭，認識到過去大男子主義思想的錯誤，向西麗作了誠懇的檢討，獲得了西麗的原諒。他們不再是夫妻，但成了知心朋友。西麗的妹妹耐蒂出走後到黑人牧師撒母耳家幹活，又隨他們去非洲做傳教士。她發現牧師的一兒一女就是西麗失去的孩子。撒母耳一家在非洲生活得很艱難，他妻子染上非洲瘧疾不治身亡。英國殖民者為種植橡膠肆意破壞當地奧林卡人民的土地和村落。撒母耳和耐蒂趕到英國向教會求救，但遭到冷落和侮辱。他們返回非洲時當地人民對他們大為失望，紛紛投奔住在森林深處反抗白人的母佈雷人。耐蒂此時已經跟撒母耳結成夫妻，決心帶著兒子亞當、女兒奧莉維亞及兒媳婦塔希回國。小說結尾處，西麗跟妹妹和兒子、女兒重新團聚，過上快樂的生活。

全書由90封書信構成。主人公西麗亞寫給上帝的信、西麗亞寫給她妹妹內蒂的信（被退回）、內蒂寫給西麗亞的信、西麗亞所愛的女人莎格給西麗亞的信。故事的背景是愛麗絲·沃克所熟悉的美國南方佐治亞鄉村，故事大約發生在二十世紀初。14歲的黑女孩西麗亞被繼父強姦，生下的兩個孩子也被繼父送走，後來西麗亞的媽媽死了，繼父再婚。西麗亞被嫁給一個已有四個孩子的鰥夫X先生，妹妹內蒂被迫逃走，輾轉到非洲。西麗亞受到X先生的百般虐待，但後來在X先生的情人莎格的愛與幫助下，逐漸轉變為一個有獨立個性的人。在藝術手法上，《紫色》採用的是傳統的書信體小說的形式。但愛麗絲·沃克突破了以往書信體的基本構思和創作原則，並不注重細節、不注重真實，而是著力誇張、變形的手法，具有強烈的超現實性和詩意。



***The Color Purple* 紫色姐妹花 英文簡介**

Introduction: *The Color Purple* is an epistolary novel. It consists of 90 letters, of which over two thirds (61 in number) Celie wrote to God, 14 to her sister Nettie, and 15 Nettie wrote to Celie.

The Color Purple is a 1982 epistolary novel 書信小說 written by American author Alice Walker that won the 1983 Pulitzer Prize for Fiction and the National Book Award for Fiction. Taking place mostly in rural Georgia, the story focuses on female black life in the 1930s in the southern United States, addressing numerous issues including their exceedingly low position in American social culture.

The Color Purple spans the years 1909 to 1949, relating the life of Celie, a Southern black woman virtually sold into a life of servitude to her brutal husband, sharecropper Albert. Celie, the protagonist and narrator of *The Color Purple*, is a poor, uneducated, fourteen-year-old black girl living in rural Georgia. Celie starts writing letters to God because her stepfather, Alphonso, beats and rapes her. Celie pours out her innermost thoughts in letter form to her sister Nettie, but Albert has been hiding the letters Nettie writes back, allowing Celie to assume that Nettie is dead.

Letters: Alice Walker highlights the power of communication through the characters letter writing form. The letters that Celie writes to God, and later to her sister Nettie, symbolize a certain voice that only Celie has and one that she is only able to express in her letters. She is able to express her true desires only in her letter. These letters allow her to display any emotion, and they are very personal to her as well. In the beginning, when she was writing letters only to God, the letters were very private and Celie would not have wanted anyone to see them. The letters are the only way she can represent her true feelings and despair as she is abused. Later, the letters she gets from Nettie give her hope that she will be reunited with her sister again. Celie writes to God for a lack of someone else to write to. She writes to her sister because she gets mad at God because of her past and the people who have been hurt because of it. She asks God "Why?" which is a question that cannot be answered. The last letter she writes is to everyone, including God showing that she has forgiven Him, and that her story has gone through a full circle of maturation.

Symbol: The title of the book is an important symbol. Celie goes through life having a hard time noticing the beautiful aspects and appreciating them. She had a difficult life and was abused as an adolescent. "The color purple is continually equated with suffering and pain. Sofia's swollen, beaten face is described as the color of 'eggplant'. Purple is the color of Celie's private parts, the site of her sexual violation. However, later Shug points out to her that life must be enjoyed. When they are in a field of purple flowers, Shug tells Celie to look at the flowers and embrace their beauty. "You must look at all the good and acknowledge them because God placed them all on earth". After learning this, Celie has a better respect for life and everything it has to offer. When Nettie arrives from Africa she is seen wearing a purple dress.



The Color Purple 英文原題由此篇改寫

The publication of *The Color Purple* transformed Alice Walker from an indubitably serious black writer whose fiction belonged to a tradition of gritty, if occasionally "magical," realism into a popular novelist, with all the perquisites and drawbacks attendant on that position. Unlike either *The Third Life of Grange Copland* (1970) or *Meridian* (1976), *The Color Purple* gained immediate and widespread public acceptance, winning both the Pulitzer Prize and the American Book Award for 1982-83. At the same time, however, it generated immediate and widespread critical unease over what appeared to be manifest flaws in its composition. Robert Towers, writing in the *New York Review of Books*, concluded that on the evidence of *The Color Purple* "Alice Walker still has a lot to learn about plotting and structuring what is clearly intended to be a realistic novel." His opinion was shared by many reviewers, who pointed out variously that in the last third of the book the narrator-protagonist Celie and her friends are propelled toward a fairytale happy ending with more velocity than credibility; that the letters from Nettie, with their disconcertingly literate depictions of life in an African village, intrude into the middle of the main action with little apparent motivation or warrant; and that the device of the **letters to God is especially unrealistic** inasmuch as it foregoes the concretizing details that traditionally have given the epistolary form its peculiar verisimilitude: the secret writing-place, the cache, the ruses to enable posting letters, and especially the letters received in return.

Indeed, Walker's violations of realist convention are so flagrant that they might well call into question whether *The Color Purple* "is clearly intended to be a realistic novel," especially as there are indications that at least some of those aspects of the novel discounted by reviewers as flaws may constitute its links to modes of writing other than Anglo-American nineteenth-century realism. For example, Henry Louis Gates, Jr., has recently located the letters to God within an Afro-American tradition deriving from slave narrative, a tradition in which the act of writing is linked to a powerful deity who "speaks" through Scripture and bestows literacy as an act of grace. For Gates, concern with finding a voice, which he sees as the defining feature of Afro-American literature, becomes the context for the allusive affinities between Celie's letters and the "free indirect 'narrative of division'" that characterizes the acknowledged predecessor of *The Color Purple*, Zora Neale Hurston's 1937 novel *Their Eyes Were Watching God*.

Gates's paradigm suggests how misleading it may be to assume that mainstream realist criteria are appropriate for evaluating *The Color Purple*. But the Afro-American preoccupation with voice as a primary element unifying both the speaking subject and the text as a whole does not deal with many of the more disquieting structural features of Walker's novel. For instance, while the letters from Nettie clearly illustrate her parallel acquisition of her own voice, a process that enables her to arrive at conclusions very like Celie's under very different circumstances, the Afro-American tradition sheds little light on the central place that these letters occupy in the narrative or on why the plot takes this sudden jump into geographically and culturally removed surroundings. And Gates's subtle explication of the ramifications of "voice," once Walker has reconstrued the term to designate a written discourse, does not attempt to address the problematic ending, in which the disparate members of Celie's extended family come together as if drawn by a cosmic magnet-and as if in defiance of the most minimal demands of narrative probability.



三、英國第一個女演員

標題	文體類型	文章內容與解析	考試日期
英國第一個女演員	長閱讀 總結文一	<p>第一段提出現象：</p> <p>English Actresses were accepted by the audiences 逐漸被接納。原因是 17 世紀初和 17 世紀末英國政治權利的變化。17 世紀初，theater 分成 court 和 commercial 兩種，court 的那種是只有男演員的，而且只供貴族等觀看，平民商人是無法進入的（court 的那種 theater 反對 actress 的原因有幾個：其中一是男演員比較專業，從莎士比亞的喜劇開始，所有的角色包括女性角色都是由男演員擔任。）commercial 的在當時就已經可以接納 actress 了，但 actress 能演的角色也不多。講幾種解釋，然後一一否定掉</p> <p>第二段： 給出了作者支持的解釋。</p> <p>第三段： Charles II 通過影響 aristocrats 從而影響了 audiences 對 Actresses 的態度。到 17 世紀末，英皇 Charles II 掌政，為了穩固地位，就接受了新的 attitude，就是 actress 也能演戲，而且國王還會親自去 commercial 的 theater 看戲，許多貴族也就跟風一起來了，actress 從而漸漸被接受。</p> <p>4 道題目：1 個主旨 3 個細節</p> <p>題目：第三段提及 Charles II 有什麼作用</p> <p>題目：義大利劇院的比較</p>	(201201) (201208) (201112) (201111)

In the past, only men could become actors in some societies. In the ancient Greece and Rome and the medieval world, it was considered disgraceful for a woman to go on the stage, and this belief persisted until the 17th century, when in Venice it was broken. In the time of William Shakespeare, women's roles were generally played by men or boys.

When an eighteen-year Puritan prohibition of drama was lifted after the English Restoration of 1660, women began to appear on stage in England. Margaret Hughes is credited by some as the first professional actress on the English stage. This prohibition ended during the reign of Charles II in part due to the fact that he enjoyed watching actresses on stage.

Some time during the last months of 1660, a professional English actress appeared in a play on the English public stage for the first time - a historic moment for English theatre. While Englishwomen may occasionally have performed in public entertainments such as mystery plays as early as the fifteenth century, they were never regularly employed in the commercial theatre in any capacity until the Restoration. The exact date of the actress's debut is not known, but is usually assumed to be 8 December 1660, when it is known that a woman played Desdemona in a production of Othello by Thomas Killigrew's King's Company. A special prologue was written by the poet Thomas Jordan 'to introduce the first Woman that came to act on the stage in the tragedy called the Moor of Venice': 'The Woman playes today, mistake me not, / No Man in Gown, or Page in Petty-Coat. A week later one Andrew Newport wrote to Sir Richard Len-son that 'upon our stages we have women actors, as beyond seas'. On 3 January 1661 Pepys recorded his visit to The Beggar's Bush by the King's Company that day was 'the first time that ever I saw Women conic upon the stage.

The possible reasons for the advent and public acceptance of actresses at this particular time continue to preoccupy scholars. It was certainly not the case, as some have assumed, of women being automatically superior to boys in the performance of female roles. English theatre finally relinquished a ludicrous convention many years after France, Italy and Spain (women were



acting in these countries by the latter half of the sixteenth century).'

Before the Restoration of Charles II there were no professional actresses on the English stage, and female roles had almost always been played by men. This book describes how and why women were permitted to act on the public stage after 1660, and the consequences of their arrival. Elizabeth Howe opens up a fascinating subject to nonspecialists. Beginning with a general account of the workings of Restoration theater, she explains the treatment received by the actresses and how their sexuality was exploited. The book addresses questions that are relevant to women's issues in every period: how far did the advent of women players alter dramatic portrayals of women? Did this encourage more or less equality between the sexes? Although in one sense merely playthings for a small male elite, the pioneering actresses also represent a new female voice in society and a new place in discourse.

The *First English Actresses* contains much of value. The aim of the book is to chart the consequences of the huge shift in the English theatre that took place between 1660 and 1662, the replacement of boy actors by women. It is a detailed, meticulous study, which will be of interest to the specialist as well as the general reader. The book seeks to understand both the larger repercussions on drama of the change in actors' sex, and to offer a history of the individual actresses who appeared on the Restoration stage. Especially notable is Elizabeth Howe's exhaustive cataloguing of the actresses and the Restoration plays in which they acted, and her consideration of the way female roles changed to accommodate women in general and individual actresses in particular. Her sense of what constitutes change is relatively narrowly focused on the playwright-actress interaction however, and there are only intermittent glimpses of how public taste, audience response, and larger cultural conditions helped to shape the depiction of heroines, female desire, or marriage. The most thought-provoking parts of the book are the first two chapters, since in them Howe raises (and answers) the theoretical and historical questions that motivate the book. Her chapter on the relationship between Jacobean and Restoration theatre is particularly interesting, and while she elects to answer the question of why professional actresses were permitted in fairly absolute historical terms (the closer affiliation between the court and the public theatre after 1660; changing attitudes to women, female sexuality, and theatre), her analysis of the changing nature of the theatre and its audience is illuminating. Howe's discussion of the cultural shifts is somewhat less satisfying, and she tends to rely on generalizations about women and the family rather than exploring them. This tendency is especially notable in the final chapters of the book, where female roles become stereotypes (faithful wife, prostitute, victim), and Howe tends to summarize plots rather than analyze their dynamics.

Howe is careful to acknowledge both the radical and the conservative nature of women on the stage: they were allowed a limited opportunity to present themselves to the public in a new way, yet their possibility for expression was always circumscribed by the social circumstances of their culture (they never, for instance, received the same monetary reward as their male counterparts). Although their presence gave dramatists new scope in their depiction of women, those representations were always determined partly by culture and certainly by audience response. The sexuality of the Restoration actress was exploited; indeed, Howe asserts that it was the central feature of the actress's professional identity (34). The public's fascination with the private lives of actresses, the way their theatrical desirability was translated into sexual availability, and conversely, the way their reputations for amorous liaisons infiltrated the drama, seemed to erode the boundaries between life and theatricality in ways that were to have lasting effects on the drama. By the 1670s, the public personae of the actresses had intervened to the extent that the "women had become more important than the roles they played" (106). This link between the actresses and the drama is Howe's real subject, and her treatment of it is richly suggestive.



四、美國人的祖先

標題	文體類型	文章內容與解析	考試日期
美國人的祖先	短閱讀 總結文 2	<p>舊觀點： 美國大陸上開始有人大概是什麼時間。一開始是說有舊觀點認為可以推到 40000-25000 年前。</p> <p>新觀點： 作者認為不可信，而認為 American 的移民可能在 20000 年就已經出現，並用了澳大利亞 Australia 來佐證。因為美洲沒有找到很多 rite，而澳大利亞有很多 rite。澳大利亞的乾旱、密度低、後冰川時期海平面上升、美國的內流河。三道題也不都太懂。沒讀出來後面的海平面上升跟前面的 rite 有什麼聯繫</p>	(201208) (201202) (201112)

**本篇僅供背景知識加強，和原文差距較大

Recent discoveries in New World archaeology along with new scientific methods for analyzing data have led to new ideas regarding the origin of the first peoples of the Americas and their time of arrival.

The **traditional theory** held that the first Americans crossed the land bridge from Siberia to Alaska around 11,500 years ago and followed an "ice-free corridor" between two large Canadian ice sheets (the Laurentide and Cordilleran) to reach unglaciated lands to the south.

These first inhabitants, whose archaeological sites are scattered across North and South America, were called the Clovis people, named after the town in New Mexico where their fluted spear points used for hunting mammoth were first found in 1932.



There is **now** convincing evidence of human habitation sites that date earlier than the Clovis culture including sites located in South America. Monte Verde, a well-studied site located along a river near southern central Chile, dates 12,500 years ago. This site contains the buried remnants of dwellings, stone tools including large bifacial projectile points, and preserved medicinal and edible plants. How did people manage to settle this far south at such an early date? A coastal migration route is now gaining more acceptance, rather than the older view of small bands moving on foot across the middle of the land bridge between Siberia and Alaska and into the continents. Emerging evidence suggests that people with boats moved along the Pacific coast into Alaska and northwestern Canada and eventually south to Peru and Chile by 12,500 years ago—and perhaps much earlier. Archaeological evidence in Australia, Melanesia, and Japan indicate boats were in use as far back as 25,000 to 40,000 years ago. Sea routes would have provided abundant food resources and easier and faster movement than land routes. Many coastal areas were unglaciated at this time, providing opportunities for landfall along the way. Several early sites along the coast of Canada, California, Peru, Ecuador, and Chile date between 10,000 and 12,000 years ago. Many potential coastal sites are now submerged, making investigation difficult.



五、長江水稻

標題	文體類型	文章內容與解析	考試日期
長江水稻	短閱讀 總結文 2	<p>V1. 背景介紹：在南亞發現了 domesticated Rice, 然後推測南亞是 Rice 的發源地，然後 1985 年在中國的長江流域發現了很多 wilder rice 的遺址，推測生活在中國的先民有可能更早的馴化了 rice。</p> <p>提出舊理論：rice-farming 最早在長江以南出現</p> <p>提出新理論：認為長江流域的 rice-farming 可以往前推幾百年。最後一段講，1940 年（？）調查的 wild-rice 其實主要確實是分佈在南方，但是長江流域也有 1、2 種，所以還是有可能 farming 在北方也開始很早滴。然後我覺得這篇文章需要把握的就是 wilder rice 和 domesticated rice。搞清楚誰是野生的，誰是馴化的就可以了。</p> <p>【問題】 三個題考得都是邏輯相關，比如加強消弱什麼的。</p> <p>【問題】：最能 undermine 長江流域水稻是水稻祖宗的？</p> <p>【問題】 作者是怎樣利用 geological graph 還是什麼 graph 來證明它的觀點的。應該是從文章最後一段找，但我感覺文中沒有直說，要自己推理。選項裏好幾個都很接近。</p> <p>V2. 全文主旨是在證明長江附近有 rice 被 cultivation 的合理性。</p> <p>第一段：說 rice 其實起源於 north 而不是 south，後面有南北對比。可能的原因是這個 rice 更有 productivity，在這個 rice-farming society 就被 cultivation 下來了。</p> <p>第二段：比較了氣候的因素，說長江附近 north 的冬天好像是 2-4 度，又說了 10000 年前好像 south 和 north 更冷，但是這個 rice 在 north 更有競爭力，所以被 cultivation 下來了。</p> <p>題目：什麼支持了氣候學說（長江附近的冬季氣溫比南部要高 2-4 度）。</p>	(201208) (201112) (201109)

Since the 1970s, archaeological sites in China's Yangtze River region have yielded evidence of sophisticated rice-farming societies that predate signs of rice cultivation elsewhere in East Asia by a thousand years. Before this evidence was discovered, it had generally been assumed that rice farming began farther to the south. This scenario was based both on the geographic range of wild or free-living rice, which was not thought to extend as far north as the Yangtze, and on archaeological records of very early domestic rice from Southeast Asia and India (now known to be not so old as first reported). Proponents of the southern-origin theory point out that early rice-farming societies along the Yangtze were already highly developed and that evidence for the first stage of rice cultivation is missing. They argue that the first hunter-gatherers to develop rice agriculture must have done so in this southern zone, within the apparent present-day geographic range of wild rice.

Yet while most stands of wild rice reported in a 1984 survey were concentrated to the south of the Yangtze drainage, two northern outlier populations were also discovered in provinces along the middle and lower Yangtze, evidence that the Yangtze wetlands may fall within both the present-day and the historical geographic ranges of rice's wild ancestor.



1. Which of the following, if true, would most clearly undermine the conclusion that the author makes based on the 1984 survey?
- (A) Areas south of the Yangtze basin currently have less wild-rice habitat than they once did.
 - (B) Surveys since 1984 have shown wild rice populations along the upper Yangtze as well as along the middle and lower Yangtze.
 - (C) The populations of wild rice along the Yangtze represent strains of wild rice that migrated to the north relatively recently.
 - (D) Early rice-farming societies along the Yangtze were not as highly developed as archaeologists once thought.
 - (E) In East Asia, the historical geographic range of wild rice was more extensive than the present-day geographic range is.
2. Based on the passage, skeptics of the idea that rice cultivation began in the Yangtze River region can point to which of the following for support?
- (A) Lack of evidence supporting the existence of rice-farming societies along the Yangtze at an early date
 - (B) Lack of evidence regarding the initial stages of rice cultivation in the Yangtze region
 - (C) Recent discoveries pertaining to the historical geographic range of rice's wild ancestor
 - (D) New information regarding the dates of very early domestic rice from Southeast Asia
 - (E) New theories pertaining to how hunter-gatherers first developed rice agriculture in East Asia
3. Which of the following can be inferred from the passage about the "southern-origin theory"?
- (A) The theory is based on an unconventional understanding of how hunter-gatherers first developed rice agriculture.
 - (B) The theory fails to take into account the apparent fact that evidence for the first stage of rice cultivation in the north is missing.
 - (C) The theory was developed primarily in response to a 1984 survey of wild rice's geographic range.
 - (D) Reassessment of the dates of some archaeological evidence has undermined support for the theory.
 - (E) Evidence of sophisticated rice-farming societies in the Yangtze region provides support for the theory.

答案：CBD



六、海牛滅絕

標題	文體類型	文章內容與解析	考試日期
海牛滅絕	總結文 2	現象：某島上的 sea cow 在短短十來年間滅絕了 舊理論：人類的捕獵 新理論：獵人過度 hunt otter 最後造成海牛食物不足。 新理論敘述：因為 otter 下降，所以被 otter 吃的 urchin 數量猛增，而 urchin 數量猛增導致被他吃的 Kelp ，數量下降，而 Kelp 是海牛的主食，因為主食沒了，所以滅絕。 【題目】 有一句話說 sea cow has way too many in numbers 的作用是什麼？ 【答案】 駁斥老觀點 disprove a previously mentioned statement ，提供了 information: urchin 數量猛增!	(201011) (201012)

The disappearance of Steller's sea cow from the Bering and Copper islands by 1768 has long been blamed on intensive hunting. But its disappearance took only 28 years from the time Steller first described the species, a remarkably short time for hunting alone to depopulate the islands, especially given the large populations initially reported. However, by 1750, hunters had also targeted nearby sea otter populations. Fewer otters would have allowed **sea urchin populations** on which the otters preyed to **expand** and the **urchins' grazing pressure on kelp forests to increase**. Sea cows were totally dependent on kelp for food, and within a decade of the onset of otter hunting Steller noted that the islands' sea cows appeared malnourished.

1. Which of the following can be inferred from the passage about kelp forests in the Bering and Copper islands between 1750 and 1768?
 - (A) They were reduced significantly.
 - (B) They disappeared entirely from the region.
 - (C) They were the primary food source for sea otters.
 - (D) They were harvested in record numbers by humans
 - (E) They increased pressure on sea urchin populations.
2. According to the passage, it is likely that during the mid-1700s, sea urchin populations near the Bering and Copper islands
 - (A) were diminished by sea cow predation
 - (B) experienced substantial increases
 - (C) migrated to waters with more plentiful food supplies
 - (D) were reduced by the pressures of hunting
 - (E) appeared to be malnourished

答案：AB



七、蜜蜂的致命疾病

標題	文體類型	文章內容與解析	考試日期
蜜蜂的致命疾病	說明文	一種病原體,簡稱 A 病原體.蜜蜂幼蟲吃了含有 A 的食物之後,體內會長一種致命的菌簡稱 CB.但是 CB 要在低於幼蟲正常體溫的情況下才會發作,所以 CB 主要是在春天侵害小規模的蜜蜂群.最近一個研究發現.在蜂群感染了 A 之後,那些負責維持蜂房溫度的蜜蜂會有意識地提高蜂房溫度.而這個"發燒現象",或者說溫度的提升是在沒有一個幼蟲(因病)死亡之前發生的.(這個現象)可能說明蜜蜂的這一反應(提高溫度)是一個保護性措施.而且(還說明)要麼是那些蜜蜂在感染症狀出現之前就發現了它們,要麼就是幼蟲把感染資訊告訴了蜜蜂.實驗結束的時候,(蜂房的溫度)又恢復正常了,說明升高的溫度並不是蜂群的最佳溫度,也說明這個"發燒現象"不僅僅是蜂群數量增大的結果.	(201111) (201108) (200710)

Ingestion of food containing spores of the pathogen *Ascosphaera apis* causes a fatal fungal disease known as chalk brood in honeybee larvae. However, larvae must be chilled to about 30°C (normal brood-comb temperature is 33-36°C) for the disease to develop. Accordingly, chalk brood is most common in spring and in small colonies. A recent study revealed that honeybees responsible for hive-temperature maintenance purposely raised the hives' temperature when colonies were inoculated with *A. apis* this "fever," or up-regulation of temperature, occurred before any larvae died, suggesting that the response is preventative and that either honeybee workers detect the infection before symptoms are visible or larvae communicate the ingestion of the pathogen.

Temperature returned to normal by the end of the study, suggesting that increased temperature is not optimal when broods are not infected, as well as that the fever does not result merely from normal colony growth (i.e., an increase in the number of workers available for temperature maintenance).

1. The primary purpose of the passage is to
 - (A) discuss the findings and implications of a particular study
 - (B) illustrate a process that formerly had been misunderstood
 - (C) outline the methods used to investigate a problem
 - (D) provide evidence to support a controversial theory
 - (E) contrast alternative interpretations of certain data
2. According to the passage, researchers concluded that fever in honeybee colonies is preventative because their study showed that such fever
 - (A) does not occur when hive temperatures are within normal range
 - (B) protects adult bees from contracting chalk brood infection
 - (C) occurs prior to the death of any larvae
 - (D) is more likely to occur in spring than in summer
 - (E) does not have an effect on uninfected broods



3. The passage implies that if hive temperature had not returned to normal by the end of the study in question, a probable conclusion of the researchers would have been that
- (A) up-regulation of temperature is a preventative measure against chalk brood
 - (B) honeybees are incapable of purposely raising hive temperatures
 - (C) *A. apis* cannot be completely eradicated through up-regulation of temperature alone
 - (D) honeybee larvae have a mechanism to alert adult honeybees to the presence of *A. apis*
 - (E) honeybee larvae may benefit from increased hive temperature even when there is no *A. apis* present
4. According to the passage, which of the following is true of chalk brood infection among honeybee larvae?
- (A) Larvae in small colonies are more likely to pass the infection to adult honeybees than are larvae in large ones.
 - (B) Infection with chalk brood induces larvae to raise their hive's temperature.
 - (C) The infection is more likely to affect larvae in winter than in spring.
 - (D) Larvae fail to develop symptoms of the disease when their brood –comb temperature remains within the normal range.
 - (E) Infected larvae exhibit visible symptoms of disease for a significant time before death.

答案：ACBD



八、星系吞食

標題	文體類型	文章內容與解析	考試日期
星系吞食	短閱讀	<p>V1. 星球之間的 cannibalism，文章排除了幾種貌似 cannibalism 但實際上不是的情況。後面又說了 double-nuclear。</p> <p>【問題】什麼是真正的 cannibalism。</p> <p>【問題】什麼是 true double-nuclear</p> <p>V2. 舊理論：兩個 galaxy 碰在一起好像 fairly common，然後描述了一個大的 galaxy 吞掉一個 dwarf 的 galaxy 的時候，會因為某種 gravity 有巨大的 tidal force 並 produce 什麼東西的，然後描述了一下 double-nuclear。</p> <p>新理論：然後（轉折），我們觀察到這種東西挺平常的，有可能只是因為隔著遙遠的兩個這樣的東西，在我們的同一條視線上，於是他們正好疊在了一起，其實他們並不是由於 galaxy 吞併而產生的。</p> <p>【問題】作者認為，真正的 two nucleus 是由什麼產生的？</p> <p>答案：大 galaxy 吞 dwarf galaxy</p>	<p>(201208)</p> <p>(201207)</p> <p>(201112)</p> <p>(201111)</p>

Galactic Cannibalism: When Galaxies Collide

Galactic cannibalism refers to the process by which a large galaxy, through tidal gravitational interactions with a companion, merges with that companion, resulting in a larger, often irregular galaxy. The most common result of the gravitational merger of two or more galaxies is an irregular galaxy of one form or another, although elliptical galaxies may also result.

It has been suggested that galactic cannibalism is currently occurring between the Milky Way and the Large and Small Magellanic Clouds. Streams of gravitationally-attracted hydrogen arcing from these dwarf galaxies to the Milky Way is taken as evidence for this theory.

A long time ago, in a galaxy far, far away, the real battle of “star wars” was wreaking havoc on two galaxies. These two galaxies, known as the “Antennae Galaxies,” were locked in a cosmic battle of tug-of-war. This process of galactic destruction is more common than once thought, and may even contribute to the growth of some galaxies.

Figure 1: The Antennae Galaxies¹ Each galaxy contains billions and billions of stars. This makes galaxies extraordinarily heavy, or massive, and massive objects can exert very strong gravitational forces in space. Just as Earth can “feel” the pull of the Sun from millions of miles away, so too can a galaxy “feel” the gravitational tug of another galaxy. This gravitational tug is much stronger for massive objects like galaxies than it is for our Sun, so galaxies that are millions of light-years away from each other can still feel the pull of another massive galaxy, even though they are so far apart. Like the Antennae Galaxies (Figure 1), two galaxies that feel the tug of each other will race towards each other at incredible speeds, eventually colliding in a galactic display of fireworks.



Figure 1: The Antennae Galaxies¹

So how do we know if two galaxies are in the process of merging? We cannot simply say that two galaxies that look close together are going to collide; we often see images containing two or more galaxies lying on top of each other and that are millions of light years away from each other! Astronomers can use various tools to find the distances between galaxies, which can tell us if the galaxies are close enough to be merging; however, a much



Figure 2: The Mice²



easier method is to look for distorted galaxies. The first signs of war are streams of stars that are pulled out from each galaxy². In Figure 2 below, we can see a large stream of stars, dust, and gas that is being plucked out from the galaxy on the left by its neighboring galaxy. The explanation for this stream is relatively straightforward, but wordy. First, let's label the galaxy on the left "Galaxy A" and the galaxy on the right "Galaxy B". As the two galaxies approach each other, the stars in Galaxy A will all feel the gravitational pull of Galaxy B. However, because the stars on the right side of Galaxy A are closer to Galaxy B, they will feel a stronger pull. This is due to the fact that the force of gravity is inversely proportional to distance (i.e., objects close to a massive object will feel a stronger force, or tug, than objects far away). Eventually the two galaxies will get so close that Galaxy A will not be able to hold on to its stars closest to Galaxy B. The gravitational pull of Galaxy B will be strong enough that it can begin to pull out material from Galaxy A, creating a stream of stars, dust, and gas. This scenario is not unique to Galaxy A, however. Just as Galaxy B will exert a force on Galaxy A, so will Galaxy A exert a force on Galaxy B. Typically, both merging galaxies will have these streams. This is only the first stage in a galactic collision, however. The end results are much more interesting. The final scenario for this galactic battle is one of two cases. If the galaxies are moving fast enough, then all that may remain is a misshapen clump of stars, the remnant of a destroyed galaxy. Faster moving galaxies may even punch a hole in another galaxy, leaving its victim with a gaping hole surrounded by a ring of stars. The other scenario is a galactic merger. In this case, bigger is always better. The larger, more massive galaxy will swallow up the smaller, less massive galaxy, resulting in galactic cannibalism. There is evidence that our own galaxy, the Milky Way, has participated in this uncouth ceremony. You might think it impossible for astronomers to know if the Milky Way has devoured its neighboring brethren. If our galaxy really did absorb another galaxy, then all of the victim's stars would now be part of the Milky Way, and there would be no way to tell if any single star is our own or came from the victim. To solve this riddle, we must return to the topic of streams. As a small, dwarf galaxy collides and passes through our large, massive galaxy, it will pull some of the Milky Way's own stars with it. Galaxies may collide several times over millions of years before they merge, so there is a good chance we can catch these streams of stars.



九、蓋斯凱爾的小說：《瑪麗·巴頓》

標題	文體類型	文章內容與解析	考試日期
蓋斯凱爾 的小說： 《瑪麗· 巴頓》 (Mary Barton)	評論文一	<p>女作家蓋斯凱爾(Gaskell)的小說：《瑪麗·巴頓》(Mary Barton)。</p> <p>註：伊莉莎白·蓋斯凱爾。英國小說家。周歲喪母，寄養在納茨福德姨母家裏，這座偏僻小城的風俗人情成為她日後創作的素材。14歲時她到附近的斯特雷特福德鎮一家女子學校學習。她自幼受到父親文學修養的熏陶，也受到父親和姨母虔誠的宗教信仰的影響。22歲時，她與曼徹斯特唯一神教會的副主持威廉·蓋斯凱爾結婚。她的作品都是在丈夫鼓勵下寫成的。作為下級牧師的妻子，她往往配合丈夫做些慈善工作，或護理窮苦的病人，因而有機會接觸生活困難、有一定階級覺悟的產業工人，了解他們的生活與思想。這一切都形象地體現在她的優秀的現實主義小說《瑪麗·巴頓》之中。</p> <p>蓋斯凱爾夫人共發表過6部長篇小說，《瑪麗·巴頓》(1848)是第一部，它真實地反映了工人階級的生活和爭鬥，在19世紀英國小說的發展中占著十分重要的地位。《瑪麗·巴頓》揭露19世紀中葉大英帝國“黃金時代”的背面廣大工人群眾的悲慘命運。小說所描寫的故事發生在40年代經濟蕭條時期，在階級對立十分尖銳的曼徹斯特。瑪麗·巴頓的父親約翰·巴頓原來是個奉公守法的老工人，由於逐漸認識到工人階級處於被剝削的地位，社會貧富懸殊，因而對資本家產生了仇恨，積極參加了工人運動。憲章運動失敗後，資本家拒絕了罷工工人的要求，決定開工。約翰·巴頓等人殺死了工廠老板的兒子。這部小說反映了憲章運動時期的勞資鬥爭，獲得了很大的成功。但小說的結尾寫約翰·巴頓向老板自首，得到寬恕，表明作者受宗教信仰的影響，想用博愛與寬恕來調和階級矛盾。這不僅損害了主人公的形象，也降低了作品的積極意義。但這部作品關於工人階級的悲慘狀況和工人鬥爭的描寫仍是全書最生動感人的部分，有力地打破了關於資本主義制度的永恒性的幻想。</p>	(199604) (201109) (201202) (201210) (201302) 吳中東 p.145

Mary Barton, particularly in its early chapters, is a moving response to the suffering of the industrial worker in the England of the 1840's. What is most impressive about the book is the intense and painstaking effort made by the author, Elizabeth Gaskell, to convey the experience of everyday life in working-class homes. Her method is partly documentary in nature: the novel includes such features as a carefully annotated reproduction of dialect, the exact details of food prices in an account of a tea party, an itemized description of the furniture of the Bartons' living room, and a transcription (again annotated) of the ballad "The Oldham Weaver." The interest of this record is considerable, even though the method has a slightly distancing effect.

As a member of the middle class, Gaskell could hardly help approaching working-class life as an outside observer and a reporter, and the reader of the novel is always conscious of this fact. But there is genuine imaginative re-creation in her accounts of the walk in Green Heys Fields, of tea at the Bartons' house, and of John Barton and his friend's discovery of the starving family in the cellar in the chapter "Poverty and Death." Indeed, for a similarly convincing re-creation of such families' emotions and responses (which are more crucial than the material details on which the mere reporter is apt to concentrate), the English novel had to wait 60 years for the early writing of D. H. Lawrence. If Gaskell never quite conveys the sense of full participation that would completely authenticate this aspect of *Mary Barton*, she still brings to these scenes an intuitive recognition of feelings that has its own sufficient conviction.

The chapter "Old Alice's History" brilliantly dramatizes the situation of that early generation of workers brought from the



villages and the countryside to the urban industrial centers. The account of Job Legh, the weaver and naturalist who is devoted to the study of biology, vividly embodies one kind of response to an urban industrial environment: an affinity for living things that hardens, by its very contrast with its environment, into a kind of crankiness. The early chapters—about factory workers walking out in spring into Green Heys Fields; about Alice Wilson, remembering in her cellar the twig-gathering for brooms in the native village that she will never again see; about Job Legh, intent on his impaled insects—capture the characteristic responses of a generation to **the new and crushing experience of industrialism**. The other early chapters eloquently portray the development of the instinctive cooperation with each other that was already becoming an important tradition among workers.

1. Which of the following best describes the author's attitude toward Gaskell's use of the method of documentary record in *Mary Barton*?
 - (A) Uncritical enthusiasm
 - (B) Unresolved ambivalence
 - (C) Qualified approval
 - (D) Resigned acceptance
 - (E) Mild irritation
2. According to the passage, *Mary Barton* and the early novels of D. H. Lawrence share which of the following?
 - (A) Depiction of the feelings of working-class families
 - (B) Documentary objectivity about working-class circumstances
 - (C) Richly detailed description of working-class adjustment to urban life
 - (D) Imaginatively structured plots about working-class characters
 - (E) Experimental prose style based on working-class dialect
3. Which of the following is most closely analogous to Job Legh in *Mary Barton*, as that character is described in the passage?
 - (A) An entomologist who collected butterflies as a child
 - (B) A small-town attorney whose hobby is nature photography
 - (C) A young man who leaves his family's dairy farm to start his own business
 - (D) A city dweller who raises exotic plants on the roof of his apartment building
 - (E) A union organizer who works in a textile mill under dangerous conditions
4. It can be inferred from examples given in the last paragraph of the passage that which of the following was part of "the new and crushing experience of industrialism" for many members of the English working class in the nineteenth century?
 - (A) Extortionate food prices
 - (B) Geographical displacement
 - (C) Hazardous working conditions
 - (D) Alienation from fellow workers
 - (E) Dissolution of family ties



5. It can be inferred that the author of the passage believes that *Mary Barton* might have been an even better novel if Gaskell had
- (A) concentrated on the emotions of a single character
 - (B) made no attempt to re-create experiences of which she had no firsthand knowledge
 - (C) made no attempt to reproduce working-class dialects
 - (D) grown up in an industrial city
 - (E) managed to transcend her position as an outsider
6. Which of the following phrases could best be substituted for the phrase “this aspect of *Mary Barton*” in line 29 without changing the meaning of the passage as a whole?
- (A) the material details in an urban working-class environment
 - (B) the influence of *Mary Barton* on Lawrence’s early work
 - (C) the place of *Mary Barton* in the development of the English novel
 - (D) the extent of the poverty and physical suffering among England’s industrial workers in the 1840’s
 - (E) the portrayal of the particular feelings and responses of working-class characters
7. The author of the passage describes *Mary Barton* as each of the following EXCEPT:
- (A) insightful
 - (B) meticulous
 - (C) vivid
 - (D) poignant
 - (E) lyrical

答案：CADBE EE



十、替代石油燃料

標題	文體類型	文章內容與解析	考試日期
替代石油燃料	總結文一	關於 methanol 甲醇, Ethanol 乙醇作為傳統汽油燃料替代品, 對汽車廢氣排放的影響。 gasoline 還有新型能源, gasoline 是因為他的化學結構複雜而且會產生 byproducts, 但是同體積 methanol 作為新型能源產生的能量較少。	(201208) (201109) (199304) 吳中東 p632

Although, recent years have seen substantial reductions in noxious pollutants from individual motor vehicles, the number of such vehicles has been steadily increasing consequently, more than 100 cities in the United States still have levels of carbon monoxide, particulate matter, and ozone (generated by photochemical reactions with hydrocarbons from vehicle exhaust) that exceed legally established limits. There is a growing realization that the only effective way to achieve further reductions in vehicle emissions—short of a massive shift away from the private automobile—is to replace conventional diesel fuel and gasoline with cleaner-burning fuels such as compressed natural gas, liquefied petroleum gas, ethanol, or methanol.

All of these alternatives are carbon-based fuels whose molecules are smaller and simpler than those of gasoline. These molecules burn more cleanly than gasoline, in part because they have fewer, if any, carbon-carbon bonds, and the hydrocarbons they do emit are less likely to generate ozone. The combustion of larger molecules, which have multiple carbon-carbon bonds, involves a more complex series of reactions. These reactions increase the probability of incomplete combustion and are more likely to release uncombusted and photochemically active hydrocarbon compounds into the atmosphere. On the other hand, alternative fuels do have drawbacks. Compressed natural gas would require that vehicles have a set of heavy fuel tanks—a serious liability in terms of performance and fuel efficiency—and liquefied petroleum gas faces fundamental limits on supply.

Ethanol and methanol, on the other hand, have important advantages over other carbon-based alternative fuels: they have a higher energy content per volume and would require minimal changes in the existing network for distributing motor fuel. Ethanol is commonly used as a gasoline supplement, but it is currently about twice as expensive as methanol, the low cost of which is one of its attractive features. Methanol's most attractive feature, however, is that it can reduce by about 90 percent the vehicle emissions that form ozone, the most serious urban air pollutant.

Like any alternative fuel, methanol has its critics. Yet much of the criticism is based on the use of “gasoline clone” vehicles that do not incorporate even the simplest design improvements that are made possible with the use of methanol. It is true, for example, that a given volume of methanol provides only about one-half of the energy that gasoline and diesel fuel do; other things being equal, the fuel tank would have to be somewhat larger and heavier. However, since methanol-fueled vehicles could be designed to be much more efficient than “gasoline clone” vehicles fueled with methanol, they would need comparatively less fuel. Vehicles incorporating only the simplest of the engine improvements that methanol makes feasible would still contribute to an immediate lessening of urban air pollution.



1. The author of the passage is primarily concerned with
 - (A) countering a flawed argument that dismisses a possible solution to a problem
 - (B) reconciling contradictory points of view about the nature of a problem
 - (C) identifying the strengths of possible solutions to a problem
 - (D) discussing a problem and arguing in favor of one solution to it
 - (E) outlining a plan of action to solve a problem and discussing the obstacles blocking that plan

2. According to the passage, incomplete combustion is more likely to occur with gasoline than with an alternative fuel because
 - (A) the combustion of gasoline releases photochemically active hydrocarbons
 - (B) the combustion of gasoline involves an intricate series of reactions
 - (C) gasoline molecules have a simple molecular structure
 - (D) gasoline is composed of small molecules
 - (E) gasoline is a carbon-based fuel

3. The passage suggests which of the following about air pollution?
 - (A) Further attempts to reduce emissions from gasoline-fueled vehicles will not help lower urban air-pollution levels.
 - (B) Attempts to reduce the pollutants that an individual gasoline-fueled vehicle emits have been largely unsuccessful.
 - (C) Few serious attempts have been made to reduce the amount of pollutants emitted by gasoline-fueled vehicles.
 - (D) Pollutants emitted by gasoline-fueled vehicles are not the most critical source of urban air pollution
 - (E) Reductions in pollutants emitted by individual vehicles have been offset by increases in pollution from sources other than gasoline-fueled vehicles.

4. which of the following most closely parallels the situation described in the first sentence of the passage?
 - (A) Although a town reduces its public services in order to avoid a tax increase, the town's tax rate exceeds that of other towns in the surrounding area.
 - (B) Although a state passes strict laws to limit the type of toxic material that can be disposed of in public landfills, illegal dumping continues to increase.
 - (C) Although a town's citizens reduce their individual use of water, the town's water supplies continue to dwindle because of a steady increase in the total population of the town.
 - (D) Although a country attempts to increase the sale of domestic goods by adding a tax to the price of imported goods, the sale of imported goods within the country continues to increase
 - (E) Although a country reduces the speed limit on its national highways, the number of fatalities caused by automobile accidents continues to increase.



5. The author describes which of the following as the most appealing feature of methanol?
- (A) It is substantially less expensive than ethanol.
 - (B) It could be provided to consumers through the existing motor fuel distribution system.
 - (C) It has a higher energy content than other alternative fuels.
 - (D) Its use would make design improvements in individual vehicles feasible
 - (E) Its use would substantially reduce ozone levels.
6. It can be inferred from the passage that a vehicle specifically designed to use methanol for fuel would
- (A) be somewhat lighter in total body weight than a conventional vehicle fueled with gasoline
 - (B) be more expensive to operate than a conventional vehicle fueled with gasoline
 - (C) have a larger and more powerful engine than a conventional vehicle fueled with gasoline
 - (D) have a larger and heavier fuel tank than a “gasoline clone” vehicle fueled with methanol
 - (E) average more miles per gallon than a “gasoline clone” vehicle fueled with methanol
7. It can be inferred that the author of the passage most likely regards the criticism of methanol in the last paragraph as
- (A) flawed because of the assumptions on which it is based
 - (B) inapplicable because of an inconsistency in the critics’ arguments
 - (C) misguided because of its exclusively technological focus
 - (D) inaccurate because it ignores consumers’ concerns
 - (E) invalid because it reflects the personal bias of the critics

答案：DBACEEA



十一、法國二月革命

標題	文體類型	文章內容與解析	考試日期
法國 二月革命	說明文	February 18XX 年，還有其他幾個戰爭 法國二月革命之所以不若其他革命有名的原因是因為其戲劇張力較低且沒有留下太多紀錄。	(201208) (201207) (201202) (199304) 吳中東 p313

In February 1848 the people of Paris rose in revolt against the constitutional monarchy of Louis-Philippe. Despite the existence of excellent narrative accounts, the February Days, as this revolt is called, have been largely ignored by social historians of the past two decades. For each of the three other major insurrections in nineteenth-century Paris—July 1830, June 1848, and May 1871—there exists at least a sketch of participants' backgrounds and an analysis, more or less rigorous, of the reasons for the occurrence of the uprisings. Only in the case of the February Revolution do we lack a useful description of participants that might characterize it in the light of what social history has taught us about the process of revolutionary mobilization.

Two reasons for this relative neglect seem obvious. First, the insurrection of February has been overshadowed by that of June. The February Revolution overthrew a regime, to be sure, but met with so little resistance that it failed to generate any real sense of historical drama. Its successor, on the other hand, appeared to pit key socioeconomic groups in a life-or-death struggle and was widely seen by contemporary observers as marking a historical departure. Through their interpretations, which exert a continuing influence on our understanding of the revolutionary process, the impact of the events of June has been magnified, while, as an unintended consequence, the significance of the February insurrection has been diminished. Second, like other "successful" insurrections, the events of February failed to generate the most desirable kinds of historical records. Although the June insurrection of 1848 and the Paris Commune of 1871 would be considered watersheds of nineteenth-century French history by any standard, they also present the social historian with a signal advantage: these failed insurrections created a mass of invaluable documentation as a by-product of authorities' efforts to search out and punish the rebels.

Quite different is the outcome of successful insurrections like those of July 1830 and February 1848. Experiences are retold, but participants typically resume their daily routines without ever recording their activities. Those who played salient roles may become the objects of highly embellished verbal accounts or in rare cases, of celebratory articles in contemporary periodicals. And it is true that the publicly acknowledged leaders of an uprising frequently write memoirs. However, such documents are likely to be highly unreliable, unrepresentative, and unsystematically preserved, especially when compared to the detailed judicial dossiers prepared for everyone arrested following a failed insurrection. As a consequence, it may prove difficult or impossible to establish for a successful revolution a comprehensive and trustworthy picture of those who participated, or to answer even the most basic questions one might pose concerning the social origins of the insurgents.



1. According to the passage, “a useful description of participants” exists for which of the following insurrections of nineteenth-century France?
 - I. The July Insurrection of 1830
 - II. The February Revolution of 1848
 - III. The June insurrection of 1848
 - IV. The May insurrection of 1871

(A) I and III only
(B) II and IV only
(C) I, II, and III only
(D) I, III, and IV only
(E) II, III, and IV only

2. It can be inferred from the passage that support for the objectives of the February Revolution was

(A) negligible
(B) misguided
(C) fanatical
(D) spontaneous
(E) widespread

3. Which of the following, best describes the organization of the second paragraph?

(A) The thesis of the passage is stated and supporting evidence systematically presented.
(B) Two views regarding the thesis presented in the first paragraph are compared and contrasted.
(C) Evidence refuting the thesis presented in the first paragraph is systematically presented.
(D) The thesis presented in the first paragraph is systematically supported.
(E) The thesis presented in the first paragraph is further defined and a conclusion drawn.

4. It can be inferred from the passage that the author considers which of the following essential for understanding a revolutionary mobilization?

(A) A comprehensive theory of revolution that can be applied to the major insurrections of the nineteenth century
(B) Awareness of the events necessary for a revolution to be successful
(C) Access to narratives and memoirs written by eyewitnesses of a given revolution
(D) The historical perspective provided by the passage of a considerable amount of time
(E) Knowledge of the socioeconomic backgrounds of a revolution’s participants

5. Which of the following can be inferred about the “detailed judicial dossiers” referred to?

(A) Information contained in the dossiers sheds light on the social origins of a revolution’s participants.
(B) The dossiers closely resemble the narratives written by the revolution’s leaders in their personal memoirs.
(C) The information that such dossiers contain is untrustworthy and unrepresentative of a revolution’s participants.
(D) Social historians prefer to avoid such dossiers whenever possible because they are excessively detailed
(E) The February Revolution of 1848 produced more of these dossiers than did the June insurrection.



6. Which of the following is the most logical objection to the claim made in the first sentence of the third paragraph?
- (A) The February Revolution of 1848 is much less significant than the July insurrection of 1830.
 - (B) The backgrounds and motivations of participants in the July insurrection of 1830 have been identified, however cursorily.
 - (C) Even less is known about the July insurrection of 1830 than about the February Revolution of 1848.
 - (D) Historical records made during the July insurrection of 1830 are less reliable than those made during the May insurrection of 1871.
 - (E) The importance of the July insurrection of 1830 has been magnified at the expense of the significance of the February Revolution of 1848.
7. With which of the following statements regarding revolution would the author most likely agree?
- (A) Revolutionary mobilization requires a great deal of planning by people representing disaffected groups.
 - (B) The objectives of the February Revolution were more radical than those of the June insurrection.
 - (C) The process of revolutionary mobilization varies greatly from one revolution to the next.
 - (D) Revolutions vary greatly in the usefulness of the historical records that they produce.
 - (E) As knowledge of the February Revolution increases, chances are good that its importance will eventually eclipse that of the June insurrection.

答案：DBDEABD



十二、日常用品的設計

標題	文體類型	文章內容與解析	考試日期
日常用品 的設計	說明文	西方技術發展史：論非語言思維與設計在技術發展中的重要性。 談 Design 和 Engineering 的。	(201202) (199504) 吳中東 p673

Many objects in daily use have clearly been influenced by science, but their form and function, their dimensions and appearance, were determined by technologists, artisans, designers, inventors, and engineers—using non-scientific modes of thought. Many features and qualities of the objects that a technologist thinks about cannot be reduced to unambiguous verbal descriptions; they are dealt with in the mind by a visual, nonverbal process. In the development of Western technology, it has been non-verbal thinking, by and large, that has fixed the outlines and filled in the details of our material surroundings. Pyramids, cathedrals, and rockets exist not because of geometry or thermodynamics, but because they were first a picture in the minds of those who built them.

The creative shaping process of a technologist's mind can be seen in nearly every artifact that exists. For example, in designing a diesel engine, a technologist might impress individual ways of nonverbal thinking on the machine by continually using an intuitive sense of rightness and fitness. What would be the shape of the combustion chamber? Where should the valves be placed? Should it have a long or short piston? Such questions have a range of answers that are supplied by experience, by physical requirements, by limitations of available space, and not least by a sense of form. Some decisions, such as wall thickness and pin diameter, may depend on scientific calculations, but the nonscientific component of design remains primary.

Design courses, then, should be an essential element in engineering curricula. Nonverbal thinking, a central mechanism in engineering design, involves perceptions, the stock-in-trade of the artist, not the scientist. Because perceptive processes are not assumed to entail "hard thinking," nonverbal thought is sometimes seen as a primitive stage in the development of cognitive processes and inferior to verbal or mathematical thought. But it is paradoxical that when the staff of the *Historic American Engineering Record* wished to have drawings made of machines and isometric views of industrial processes for its historical record of American engineering, the only college students with the requisite abilities were not engineering students, but rather students attending architectural schools.

If courses in design, which in a strongly analytical engineering curriculum provide the background required for practical problem-solving, are not provided, we can expect to encounter silly but costly errors occurring in advanced engineering systems. For example, early models of high-speed railroad cars loaded with sophisticated controls were unable to operate in a snowstorm because a fan sucked snow into the electrical system. Absurd random failures that plague automatic control systems are not merely trivial aberrations; they are a reflection of the chaos that results when design is assumed to be primarily a problem in mathematics.



1. In the passage, the author is primarily concerned with
 - (A) identifying the kinds of thinking that are used by technologists
 - (B) stressing the importance of nonverbal thinking in engineering design
 - (C) proposing a new role for nonscientific thinking in the development of technology
 - (D) contrasting the goals of engineers with those of technologists
 - (E) criticizing engineering schools for emphasizing science in engineering curricula

2. It can be inferred that the author thinks engineering curricula are
 - (A) strengthened when they include courses in design
 - (B) weakened by the substitution of physical science courses for courses designed to develop mathematical skills
 - (C) strong because nonverbal thinking is still emphasized by most of the courses
 - (D) strong despite the errors that graduates of such curricula have made in the development of automatic control systems
 - (E) strong despite the absence of nonscientific modes of thinking

3. Which of the following statements best illustrates the main point of the first two paragraphs of the passage?
 - (A) When a machine like a rotary engine malfunctions, it is the technologist who is best equipped to repair it.
 - (B) Each component of an automobile—for example, the engine or the fuel tank—has a shape that has been scientifically determined to be best suited to that component's function.
 - (C) A telephone is a complex instrument designed by technologists using only nonverbal thought.
 - (D) The designer of a new refrigerator should consider the designs of other refrigerators before deciding on its final form.
 - (E) The distinctive features of a suspension bridge reflect its designer's conceptualization as well as the physical requirements of its site.

4. Which of the following statements would best serve as an introduction to the passage?
 - (A) The assumption that the knowledge incorporated in technological developments must be derived from science ignores the many non-scientific decisions made by technologists.
 - (B) Analytical thought is no longer a vital component in the success of technological development.
 - (C) As knowledge of technology has increased, the tendency has been to lose sight of the important role played by scientific thought in making decisions about form, arrangement, and texture.
 - (D) A movement in engineering colleges toward a technician's degree reflects a demand for graduates who have the nonverbal reasoning ability that was once common among engineers
 - (E) A technologist thinking about a machine, reasoning through the successive steps in a dynamic process, can actually turn the machine over mentally.



5. The author calls the predicament faced by the *Historic American Engineering Record* “paradoxical” most probably because
- (A) the publication needed drawings that its own staff could not make
 - (B) architectural schools offered but did not require engineering design courses for their students
 - (C) college students were qualified to make the drawings while practicing engineers were not
 - (D) the drawings needed were so complicated that even students in architectural schools had difficulty making them
 - (E) engineering students were not trained to make the type of drawings needed to record the development of their own discipline
6. According to the passage, random failures in automatic control systems are “not merely trivial aberrations” (lines 53) because
- (A) automatic control systems are designed by engineers who have little practical experience in the field
 - (B) the failures are characteristic of systems designed by engineers relying too heavily on concepts in mathematics
 - (C) the failures occur too often to be taken lightly
 - (D) designers of automatic control systems have too little training in the analysis of mechanical difficulties
 - (E) designers of automatic control systems need more help from scientists who have a better understanding of the analytical problems to be solved before such systems can work efficiently
7. The author uses the example of the early models of high-speed railroad cars primarily to
- (A) weaken the argument that modern engineering systems have major defects because of an absence of design courses in engineering curricula
 - (B) support the thesis that the number of errors in modern engineering systems is likely to increase
 - (C) illustrate the idea that courses in design are the most effective means for reducing the cost of designing engineering systems
 - (D) support the contention that a lack of attention to the nonscientific aspects of design results in poor conceptualization by engineers
 - (E) weaken the proposition that mathematics is a necessary part of the study of design

答案：BAEAEBD



十三、彗星的原始遺跡

標題	文體類型	文章內容與解析	考試日期
彗星的原始遺跡	總結文 2	<p>宇宙早期物質的重要證據</p> <p>提出舊理論：某個遠離 XX 的星體表面上的物質由於低溫的緣故，以為他們很 pristine，被認為是保留了宇宙早期物質的重要證據。宇宙裏一些彗星 comet 的構成，是不是 pristine relics，有人說是。</p> <p>提出證據 1，反駁舊理論：有三個因素可以導致物質改變。有人說 radioactive 的環境導致 comet 變質，來自宇宙的射線 (array) 會改變表面 chemical compound 的變化；</p> <p>提出證據 2，反駁舊理論：又有人說 comet 接近太陽時，太陽風把外面變質的都吹掉了；但是另外又有人說即使吹掉了，但因為太陽溫度太高，裡面的物質因為加溫還是變質了，因此裡面的 relics 很難測定。最後 (以 though 開始) 說內部的 isotope evolve 怎麼了 (有題)。</p> <p>題目：(多選題)。科學家認為哪些可以導致彗星成分改變？</p> <p>參考答案：其中有一個選項是 radiative decaying—改變彗星的內部成分；另外兩個都是改變彗星的外觀 (三個選項都選了)</p> <p>題目：說“內部的 isotope evolve。”這句話是什麼意義</p> <p>選項：反駁了主題</p> <p>選項：反駁了科學家 is able to 通過這個方法研究</p>	<p>(201201)</p> <p>(201208)</p> <p>(201209)</p> <p>(201210)</p> <p>(201211)</p>

The long-held perspective that comets are pristine remnants from the formation of the solar system has evolved from the prevailing views of 30 years ago, finds planetary scientist Dr. S. Alan Stern in a paper published in the journal Nature. "It's fair to say that a sea change has taken place," says Stern, director of the Space Studies Department in the SwRI Space Science and Engineering Division. "We used to consider comets as wholly unchanged relics that had been stored ever since the era of solar system formation in a distant, cold, timeless deep freeze called the Oort cloud. We now appreciate that a variety of processes slowly modify comets during their storage there," he says. "As a result, it's become clear that the Oort cloud and its cousin the Kuiper Belt are not such perfect deep freezes."

The first evolutionary process to be recognized as affecting comets during their long storage was radiation damage, followed by the discovery that sandblasting from dust grains in the interstellar medium plays an important role. Next, researchers theorized that comets in the Oort cloud are heated to scientifically significant temperatures by passing stars and supernovae, says Stern. More recently, researchers are finding that comets in the Kuiper Belt are heavily damaged by collisions. "It also now seems inevitable that most comets from the Kuiper Belt, though constructed of ancient material, cannot themselves be ancient -- instead they must be 'recently' created chips off larger Kuiper Belt Objects, formed as a result of violent impacts," says Stern. "This is truly a paradigm shift. Many of the short-period comets we see aren't even ancient!" The classical view that comets do not evolve while they are stored far from the sun in the Oort cloud and Kuiper Belt began to change as far back as the 1970s, but the pace of discoveries about the way comets evolve picked up considerably in the 1980s and 1990s.



As a result of these findings, astronomers now better appreciate that comets, though still the most pristine bodies known, have been modified in several important ways since their birth, says Stern.

The realization that comets evolve during their long storage in the Oort cloud and Kuiper Belt provides insight and context to more confidently evaluate the results of astronomical and space mission observations of comets. So, too, it suggests that cometary sample return missions now on the drawing board for NASA should employ relatively deep subsurface sampling if truly pristine, ancient material is to be collected.

十四、舞蹈動作中的物理原理

標題	文體類型	文章內容與解析	考試日期
舞蹈動作中的物理原理	說明文	舞蹈動作的物理特性分析	(201205) (199402) 吳中東 P. 672

Analyzing the physics of dance can add fundamentally to a dancer's skill. Although dancers seldom see themselves totally in physical terms—as body mass moving through space under the influence of well-known forces and obeying physical laws—neither can they afford to ignore the physics of movement. For example, no matter how much a dancer wishes to leap off the floor and then start turning, the law of conservation of angular momentum absolutely prevents such a movement. Some movements involving primarily vertical or horizontal motions of the body as a whole, in which rotations can be ignored, can be studied using simple equations of linear motion in three dimensions. However, rotational motions require more complex approaches that involve analyses of the way the body's mass is distributed, the axes of rotation involved in different types of movement, and the sources of the forces that produce the rotational movement.

1. The primary purpose of the passage is to

- (A) initiate a debate over two approaches to analyzing a field of study
- (B) describe how one field of knowledge can be applied to another field
- (C) point out the contradictions between two distinct theories
- (D) define and elaborate on an accepted scientific principle
- (E) discuss the application of a new theory within a new setting

2. The author mentions all of the following as contributing to an understanding of the physics of dance EXCEPT:

- (A) the law of conservation of angular momentum
- (B) analyses of the way in which the body's mass is distributed
- (C) equations of linear motion in three dimensions
- (D) analyses of the sources that produce rotational motions
- (E) the technical terms for movements such as leaps and turns



3. The author implies that dancers can become more skilled by doing which of the following?
- (A) Ignoring rotational movements
 (B) Understanding the forces that permit various movements
 (C) Solving simple linear equations
 (D) Learning the technical terms utilized by choreographers
 (E) Circumventing the law of conservation of angular momentum
4. Analysis of which of the following would require the kind of complex approach described in the last sentence?
- (A) A long leap across space
 (B) A short jump upward with a return to the same place
 (C) A sustained and controlled turn in place
 (D) Short, rapid steps forward and then backward without turning
 (E) Quick sidesteps in a diagonal line

答案: BEBC

十五、鳥鳴變化的作用

標題	文體類型	文章內容與解析	考試日期
鳥鳴變化的作用	總結文 2	<p>提出舊理論：一種鳥，鳥叫聲變化 (switch song, song-match。。。) 作用不僅是求偶，也可以是防止其他 male bird 入侵 (aggress) 的。</p> <p>提出新理論：現在發現還有其他情況也會使得鳥叫發生變化，然後。。。說有時候鳥叫聲一樣 common，有時候不一樣 (沒讀懂)，最後說 neighbor 的鳥通常與對方的叫聲要不完全一樣。</p> <p>【題目】有細節，還有某句話作用。</p>	(201205) (199604)

Over the years, biologists have suggested two main pathways by which sexual selection may have shaped the evolution of male bird-song. In the first, male competition and intrasexual selection produce relatively short, simple songs used mainly in territorial behavior. In the second, female choice and intersexual selection produce longer, more complicated songs used mainly in mate attraction; (like such visual ornamentation as the peacock's tail, elaborate vocal characteristics increase the male's chances of being chosen as a mate, and he thus enjoys more reproductive success than his less ostentatious rivals). The two pathways are not mutually exclusive, and we can expect to find examples that reflect their interaction. Teasing them apart has been an important challenge to evolutionary biologists.

Early research confirmed the role of intrasexual selection. In a variety of experiments in the field, males responded aggressively to recorded songs by exhibiting territorial behavior near the speakers. The breakthrough for research into intersexual selection came in the development of a new technique for investigating female response in the laboratory. When female cowbirds raised in isolation in sound-proof chambers were exposed to recordings of male song, they responded by exhibiting mating behavior. By quantifying the responses, researchers were able to determine what particular features of the song were most important. (In further experiments on song sparrows, researchers found that when exposed to a single song type repeated several times or to a repertoire of different song types, females responded more to the latter. The beauty of the experimental design is that it effectively rules out confounding variables; acoustic isolation assures that the female can respond only to the song structure itself).

If intersexual selection operates as theorized, males with more complicated songs should not only attract females more



readily but should also enjoy greater reproductive success. At first, however, researchers doing fieldwork with song sparrows found no correlation between larger repertoires and early mating, which has been shown to be one indicator of reproductive success; further, common measures of male quality used to predict reproductive success, such as weight, size, age, and territory, also failed to correlate with song complexity.

The confirmation researchers had been seeking was finally achieved in studies involving two varieties of warblers. Unlike the song sparrow, which repeats one of its several song types in bouts before switching to another, the warbler continuously composes much longer and more variable songs without repetition. For the first time, researchers found a significant correlation between repertoire size and early mating, and they discovered further that repertoire size had a more significant effect than any other measure of male quality on the number of young produced. The evidence suggests that warblers use their extremely elaborate songs primarily to attract females, clearly confirming the effect of intersexual selection on the evolution of birdsong.

1. The passage is primarily concerned with

- (A) showing that intrasexual selection has a greater effect on birdsong than does intersexual selection
- (B) contrasting the role of song complexity in several species of birds
- (C) describing research confirming the suspected relationship between intersexual selection and the complexity of birdsong
- (D) demonstrating the superiority of laboratory work over field studies in evolutionary biology
- (E) illustrating the effectiveness of a particular approach to experimental design in evolutionary biology

2. The author mentions the peacock's tail in line 8 most probably in order to

- (A) cite an exception to the theory of the relationship between intrasexual selection and male competition
- (B) illustrate the importance of both of the pathways that shaped the evolution of birdsong
- (C) draw a distinction between competing theories of intersexual selection
- (D) give an example of a feature that may have evolved through intersexual selection by female choice
- (E) refute a commonly held assumption about the role of song in mate attraction

3. According to the passage, which of the following is specifically related to intrasexual selection?

- (A) Female choice
- (B) Territorial behavior
- (C) Complex song types
- (D) Large song repertoires
- (E) Visual ornamentation

4. Which of the following, if true, would most clearly demonstrate the interaction mentioned in lines 6-7?

- (A) Female larks respond similarly both to short, simple songs and to longer, more complicated songs.
- (B) Male canaries use visual ornamentation as well as elaborate song repertoires for mate attraction.
- (C) Both male and female blackbirds develop elaborate visual and vocal characteristics.
- (D) Male jays use songs to compete among themselves and to attract females.
- (E) Male robins with elaborate visual ornamentation have as much reproductive success as rivals with elaborate vocal



characteristics.

5. The passage indicates that researchers raised female cowbirds in acoustic isolation in order to

- (A) eliminate confounding variables
- (B) approximate field conditions
- (C) measure reproductive success
- (D) quantify repertoire complexity
- (E) prevent early mating



6. According to the passage, the song sparrow is unlike the warbler in that the song sparrow
- (A) uses songs mainly in territorial behavior
 - (B) continuously composes long and complex songs
 - (C) has a much larger song repertoire
 - (D) repeats one song type before switching to another
 - (E) responds aggressively to recorded songs
7. The passage suggests that the song sparrow experiments mentioned in lines 37-43 failed to confirm the role of intersexual selection because
- (A) females were allowed to respond only to the song structure
 - (B) song sparrows are unlike other species of birds
 - (C) the experiments provided no evidence that elaborate songs increased male reproductive success
 - (D) the experiments included the songs of only a small number of different song sparrows
 - (E) the experiments duplicated some of the limitations of previous field studies

Ans: CDBDA DC



十六、海底火山生物

標題	文體類型	文章內容與解析	考試日期
海底火山 生物		第一句是: The deep sea typically has a sparse fauna dominated by tiny worms and crustaceans, with an even sparser distribution of larger animals.	(201208) No. 8-3

(This passage is excerpted from an article that was published in 1981.)

The deep sea typically has a sparse fauna dominated by tiny worms and crustaceans, with an even sparser distribution of larger animals. However, near **hydrothermal** vents, areas of the ocean where warm water emerges from subterranean sources, live remarkable densities of huge clams, blind crabs, and fish.

Most deep-sea faunas rely for food on **particulate matter**, ultimately derived from photosynthesis, falling from above. The food supplies necessary to sustain the large vent communities, however, must be many times the ordinary fallout. The first reports describing vent faunas proposed two possible sources of nutrition: bacterial chemosynthesis, production of food by bacteria using energy derived from chemical changes, and advection, the drifting of food materials from surrounding regions. Later, evidence in support of the idea of intense local chemosynthesis was accumulated: hydrogen sulfide was found in vent water; many vent-site bacteria were found to be capable of chemosynthesis; and extremely large concentrations of bacteria were found in samples of vent water thought to be pure. This final observation seemed decisive. If such astonishing concentrations of bacteria were typical of vent outflow, then food within the vent would dwarf any contribution from advection. Hence, the widely quoted conclusion was reached that bacterial chemosynthesis provides the foundation for hydrothermal-vent food chains—an exciting prospect because no other communities on Earth are independent of photosynthesis.

There are, however, certain difficulties with this interpretation. For example, some of the large sedentary organisms associated with vents are also found at ordinary deep-sea temperatures many meters from the nearest hydrothermal sources. This suggests that bacterial chemosynthesis is not a sufficient source of nutrition for these creatures. Another difficulty is that similarly dense populations of large deep-sea animals have been found in the proximity of “smokers”—vents where water emerges at temperatures up to 350°C. No bacteria can survive such heat, and no bacteria were found there. Unless smokers are consistently located near more hospitable warm-water vents, chemosynthesis can account for only a fraction of the vent faunas. It is conceivable, however, that these large, sedentary organisms do in fact feed on bacteria that grow in warm-water vents, rise in the vent water, and then **rain in** peripheral areas to nourish animals living some distance from the warm-water vents.

Nonetheless advection is a more likely alternative food source. Research has demonstrated that advective flow, which originates near the surface of the ocean where suspended particulate matter accumulates, transports some of that matter and water to the vents. Estimates suggest that for every cubic meter of vent discharge, 350 milligrams of particulate organic material would be advected into the vent area. Thus, for an average-sized vent, advection could provide more than 30 kilograms of potential food per day. In addition, it is likely that small live animals in the advected water might be killed or stunned by thermal and/or chemical shock, thereby contributing to the food supply of vents.



1. The passage provides information for answering which of the following questions?
 - (A) What causes warm-water vents to form?
 - (B) Do vent faunas consume more than do deep-sea faunas of similar size?
 - (C) Do bacteria live in the vent water of smokers?
 - (D) What role does hydrogen sulfide play in chemosynthesis?
 - (E) What accounts for the locations of deep-sea smokers?

2. The information in the passage suggests that the majority of deep-sea faunas that live in nonvent habitats have which of the following characteristics?
 - (A) They do not normally feed on particles of food in the water.
 - (B) They are smaller than many vent faunas.
 - (C) They are predators.
 - (D) They derive nutrition from a chemosynthetic food source.
 - (E) They congregate around a single main food source.

3. The primary purpose of the passage is to
 - (A) describe a previously unknown natural phenomenon
 - (B) reconstruct the evolution of a natural phenomenon
 - (C) establish unequivocally the accuracy of a hypothesis
 - (D) survey explanations for a natural phenomenon and determine which is best supported by evidence
 - (E) entertain (to receive and take into consideration "refused to entertain our plea") criticism of the author's research and provide an effective response

4. Which of the following does the author cite as a weakness in the argument that bacterial chemosynthesis provides the foundation for the food chains at deep-sea vents?
 - (A) Vents are colonized by some of the same animals found in other areas of the ocean floor.
 - (B) Vent water does not contain sufficient quantities of hydrogen sulfide.
 - (C) Bacteria cannot produce large quantities of food quickly enough.
 - (D) Large concentrations of minerals are found in vent water.
 - (E) Some bacteria found in the vents are incapable of chemosynthesis.



5. Which of the following is information supplied in the passage that would support the statement that the food supplies necessary to sustain vent communities must be many times that of ordinary fallout?
- I. Large vent faunas move from vent to vent in search of food.
 - II. Vent faunas are not able to consume food produced by photosynthesis.
 - III. Vents are more densely populated than are other deep-sea areas.
- (A) I only
(B) III only
(C) I and II only
(D) II and III only
(E) I, II, and III
6. The author refers to “smokers” (line 38) most probably in order to
- (A) show how thermal shock can provide food for some vent faunas by stunning small animals
 - (B) prove that the habitat of most deep-sea animals is limited to warm-water vents
 - (C) explain how bacteria carry out chemosynthesis
 - (D) demonstrate how advection compensates for the lack of food sources on the seafloor
 - (E) present evidence that bacterial chemosynthesis may be an inadequate source of food for some vent faunas
7. Which of the following can be inferred from the passage about the particulate matter that is carried down from the surface of the ocean?
- (A) It is the basis of bacterial chemosynthesis in the vents.
 - (B) It may provide an important source of nutrition for vent faunas.
 - (C) It may cause the internal temperature of the vents to change significantly.
 - (D) It is transported as large aggregates of particles.
 - (E) It contains hydrogen sulfide.

Ans: CBDAB EB



十七、蝙蝠的回聲定位

標題	文體類型	文章內容與解析	考試日期
蝙蝠的回聲定位		蝙蝠的捕食技巧（有關長短聲波）	(201208) No. 8-2

Echolocating bats emit sounds in patterns—characteristic of each species—that contain both frequency-modulated (FM) and constant-frequency (CF) signals. The broadband FM signals and the narrowband CF signals travel out to a target, reflect from it, and return to the hunting bat. In this process of transmission and reflection, the sounds are changed, and the changes in the echoes enable the bat to perceive features of the target.

The FM signals report information about target characteristics that modify the timing and the fine frequency structure, or spectrum, of echoes—for example, the target's size, shape, texture, surface structure, and direction in space. Because of their narrow bandwidth, CF signals portray only the target's presence and, in the case of some bat species, its motion relative to the bat's. Responding to changes in the CF echo's frequency, bats of some species correct in flight for the direction and velocity of their moving prey.

1. According to the passage, the information provided to the bat by CF echoes differs from that provided by FM echoes in which of the following ways?
 - (A) Only CF echoes alert the bat to moving targets.
 - (B) Only CF echoes identify the range of widely spaced targets.
 - (C) Only CF echoes report the target's presence to the bat.
 - (D) In some species, CF echoes enable the bat to judge whether it is closing in on its target.
 - (E) In some species, CF echoes enable the bat to discriminate the size of its target and the direction in which the target is moving.
2. According to the passage, the configuration of the target is reported to the echolocating bat by changes in the
 - (A) echo spectrum of CF signals
 - (B) echo spectrum of FM signals
 - (C) direction and velocity of the FM echoes
 - (D) delay between transmission and reflection of the CF signals
 - (E) relative frequencies of the FM and the CF echoes
3. The author presents the information concerning bat sonar in a manner that could be best described as
 - (A) argumentative
 - (B) commendatory
 - (C) critical
 - (D) disbelieving
 - (E) objective



4. Which of the following best describes the organization of the passage?

- (A) A fact is stated, a process is outlined, and specific details of the process are described.
- (B) A fact is stated, and examples suggesting that a distinction needs correction are considered.
- (C) A fact is stated, a theory is presented to explain that fact, and additional facts are introduced to validate the theory.
- (D) A fact is stated, and two theories are compared in light of their explanations of this fact.
- (E) A fact is stated, a process is described, and examples of still another process are illustrated in detail.

Ans: DBEA



十八、雲系對全球變暖氣候模型預測的影響

標題	文體類型	文章內容與解析	考試日期
雲系對全球變暖氣候模型預測的影響		<p>Cloud system's impact on the prediction of global warming using climate models</p> <p>P1, cloud hinders these models to accurately predict the impact on global warming. A kind of "S cloud" can compensate global warming, while a kind of cirrus cloud will exacerbate it.</p> <p>P2, when comparing these models excluding clouds, all such models returns compatible results. but if clouds are included, results become diversified, making it difficult to predict.</p> <p>【問題】to accurately predict global warming, what does these scientist have to answer?</p> <p>A. what kind of cloud system will form on earth?</p> <p>D. what fraction of the cloud is cirrus cloud?</p>	<p>(201207)</p> <p>(201210)</p> <p>*1996 年</p> <p>04 月北美</p>

As of the late 1980's, neither theorists nor large-scale computer climate models could accurately predict whether cloud systems would help or hurt a warming globe. Some studies suggested that a four percent increase in stratocumulus clouds over the ocean could compensate for a doubling in atmospheric carbon dioxide, preventing a potentially disastrous planetwide temperature increase. On the other hand, an increase in cirrus clouds could increase global warming.

That clouds represented the weakest element in climate models was illustrated by a study of fourteen such models. Comparing climate forecasts for a world with double the current amount of carbon dioxide, researchers found that the models agreed quite well if clouds were not included. But when clouds were incorporated, a wide range of forecasts was produced. With such discrepancies plaguing the models, scientists could not easily predict how quickly the world's climate would change, nor could they tell which regions would face dustier droughts or deadlier monsoons.

- The author of the passage is primarily concerned with
 - confirming a theory
 - supporting a statement
 - presenting new information
 - predicting future discoveries
 - reconciling discrepant findings
- It can be inferred that one reason the fourteen models described in the passage failed to agree was that
 - they failed to incorporate the most up-to-date information about the effect of clouds on climate
 - they were based on faulty information about factors other than clouds that affect climate
 - they were based on different assumptions about the overall effects of clouds on climate
 - their originators disagreed about the kinds of forecasts the models should provide
 - their originators disagreed about the factors other than clouds that should be included in the models



3. It can be inferred that the primary purpose of the models included in the study discussed in the second paragraph of the passage was to
- (A) predict future changes in the world's climate
 - (B) predict the effects of cloud systems on the world's climate
 - (C) find a way to prevent a disastrous planetwide temperature increase
 - (D) assess the percentage of the Earth's surface covered by cloud systems
 - (E) estimate by how much the amount of carbon dioxide in the Earth's atmosphere will increase
4. The information in the passage suggests that scientists would have to answer which of the following questions in order to predict the effect of clouds on the warming of the globe?
- (A) What kinds of cloud systems will form over the Earth?
 - (B) How can cloud systems be encouraged to form over the ocean?
 - (C) What are the causes of the projected planetwide temperature increase?
 - (D) What proportion of cloud systems are currently composed of cirrus of clouds?
 - (E) What proportion of the clouds in the atmosphere form over land masses?

Ans: BCAA



十九、超新星（二）

標題	文體類型	文章內容與解析	考試日期
超新星			No. 7-3

If a supernova (the explosion of a massive star) triggered star formation from dense clouds of gas and dust, and if the most massive star to be formed from the cloud evolved into a supernova and triggered a new round of star formation, and so on, then a chain of star-forming regions would result. If many such chains were created in a differentially rotating galaxy, the distribution of stars would resemble the observed distribution in a spiral galaxy.

This line of reasoning underlies an exciting new theory of spiral-galaxy structure. A computer simulation based on this theory has reproduced the appearance of many spiral galaxies without assuming an underlying density wave, the hallmark of the most widely accepted theory of the large-scale structure of spiral galaxies. That theory maintains that a density wave of spiral form sweeps through the central plane of a galaxy, compressing clouds of gas and dust, which collapse into stars that form a spiral pattern.

*spiral galaxy: = spiral nebula n. 螺旋星雲, 旋渦星雲

*hallmark: a distinguishing characteristic, trait, or feature “the dramatic flourishes which are the hallmark of the trial lawyer Marion K. Sanders”

1. The primary purpose of the passage is to

- (A) describe what results when a supernova triggers the creation of chains of star-forming regions
- (B) propose a modification in the most widely accepted theory of spiral-galaxy structure
- (C) compare and contrast the roles of clouds of gas and dust in two theories of spiral-galaxy structure
- (D) describe a new theory of spiral-galaxy structure and contrast it with the most widely accepted theory
- (E) describe a new theory of spiral-galaxy structure and discuss a reason why it is inferior to the most widely accepted theory

2. The passage implies that, according to the new theory of spiral-galaxy structure, a spiral galaxy can be created by supernovas when the supernovas are

- (A) producing an underlying density wave
- (B) affected by a density wave of spiral form
- (C) distributed in a spiral pattern
- (D) located in the central plane of a galaxy
- (E) located in a differentially rotating galaxy



3. Which of the following, if true, would most discredit the new theory as described in the passage?
- (A) The exact mechanism by which a star becomes a supernova is not yet completely known and may even differ for different stars.
 - (B) Chains of star-forming regions like those postulated in the new theory have been observed in the vicinity of dense clouds of gas and dust.
 - (C) The most massive stars formed from supernova explosions are unlikely to evolve into supernovas.
 - (D) Computer simulations of supernovas provide a poor picture of what occurs just before a supernova explosion.
 - (E) A density wave cannot compress clouds of gas and dust to a density high enough to create a star.
4. The author's attitude toward the new theory of spiral-galaxy structure can best be described as
- (A) euphoric
 - (B) enthusiastic
 - (C) concerned
 - (D) critical
 - (E) disputatious

【中文翻譯】

倘若一顆超新星（**supernova**，即一顆質量龐大的星星的爆炸）觸發星星從稠密的氣體和塵埃雲中形成，且倘若從雲層中形成的質量最龐大的星星演變成一顆超新星並觸發新的一輪星星形成過程，如此循環下去的話，那麼，一系列能形成星星的區域便告產生。倘若許多這樣的系列在一個以不同的方式旋轉著的星系中得以形成的話，那以，星星的分佈將類似於所觀察到的螺旋形星系（**spiral galaxy**）內的星星分佈。這一推理思路構成了一種激動人心的有關螺旋形星系結構的新理論的基礎。建立在這一理論基礎上的一種計算機模擬研究再現了許多螺旋形星系的外觀，在此過程中並不假設一基本密度波（**density wave**）的存在，而所謂的密度波則是那種最廣為人們接受的有關大規模螺旋形星結構理論的標誌特徵。那種理論堅持認為，螺旋形狀的密度波貫穿星系的中央層面，將氣體和塵埃的雲層壓縮，這些雲層則坍縮為一顆顆星星，形成一螺旋狀結構。

Ans: DECB



二十、地球冷暖週期通過石頭含鐵量推定

標題	文體類型	文章內容與解析	考試日期
地球冷暖週期通過石頭含鐵量推定	長閱讀	地球的冷暖週期據某個海峽海底石頭的含鐵量來推測的話應該是 1500 年，因為含鐵的石頭是被冰載著來到南部的這個海峽的。只有暖的時候冰才能飄過來。而礦石鐵的含量是 1500 年一個週期，所以地球的冷暖也是。	(201208) New PP2 Test01

Recent studies of sediment in the North Atlantic's deep waters reveal possible cyclical patterns in the history of Earth's climate. The rock fragments in these sediments are too large to have been transported there by ocean currents; they must have reached their present locations by traveling in large icebergs that floated long distances from their point of origin before melting. Geologist Gerard Bond noticed that some of the sediment grains were stained with iron oxide, evidence that they originated in locales where glaciers had overrun outcrops of red sandstone. Bond's detailed analysis of deep-water sediment cores showed changes in the mix of sediment sources over time: the proportion of these red-stained grains fluctuated back and forth from lows of 5 percent to highs of about 17 percent, and these fluctuations occurred in a nearly regular 1,500-year cycle.

Bond hypothesized that the alternating cycles might be evidence of changes in ocean-water circulation and therefore in Earth's climate. He knew that the sources of the red-stained grains were generally closer to the North Pole than were the places yielding a high proportion of "clean" grains. At certain times, apparently, more icebergs from the Arctic Ocean in the far north were traveling south well into the North Atlantic before melting and shedding their sediment.

Ocean waters are constantly moving, and water temperature is both a cause and an effect of this movement. As water cools, it becomes denser and sinks to the ocean's bottom. During some periods, the bottom layer of the world's oceans comes from cold, dense water sinking in the far North Atlantic. This causes the warm surface waters of the Gulf Stream to be pulled northward. Bond realized that during such periods, the influx of these warm surface waters into northern regions could cause a large proportion of the icebergs that bear red grains to melt before traveling very far into the North Atlantic. But sometimes the ocean's dynamic changes, and waters from the Gulf Stream do not travel northward in this way. During these periods, surface waters in the North Atlantic would generally be colder, permitting icebergs bearing red-stained grains to travel farther south in the North Atlantic before melting and depositing their sediment.

The onset of the so-called Little Ice Age (1300-1860), which followed the Medieval Warm Period of the eighth through tenth centuries, may represent the most recent time that the ocean's dynamic changed in this way. If ongoing climate-history studies support Bond's hypothesis of 1,500-year cycles, scientists may establish a major natural rhythm in Earth's temperatures that could then be extrapolated into the future. Because the midpoint of the Medieval Warm Period was about A.D. 850, an extension of Bond's cycles would place the midpoint of the next warm interval in the twenty-fourth century.

1. According to the passage, which of the following is true of the rock fragments contained in the sediments studied by Bond?
- A. The majority of them are composed of red sandstone.
 - B. They must have reached their present location over 1,500 years ago.
 - C. They were carried by icebergs to their present location.
 - D. Most of them were carried to their present location during a warm period in Earth's climatic history.
 - E. They are unlikely to have been carried to their present location during the Little Ice Age.



2. In the final paragraph of the passage (lines 27-33), the author is concerned primarily with
- A. answering a question about Earth's climatic history
 - B. pointing out a potential flaw in Bond's hypothesis
 - C. suggesting a new focus for the study of ocean sediments
 - D. tracing the general history of Earth's climate
 - E. discussing possible implications of Bond's hypothesis
3. According to the passage, Bond hypothesized that which of the following circumstances would allow red-stained sediment grains to reach more southerly latitudes?
- A. Warm waters being pulled northward from the Gulfstream
 - B. Climatic conditions causing icebergs to melt relatively quickly
 - C. Icebergs containing a higher proportion of iron oxide than usual
 - D. The formation of more icebergs than usual in the far north
 - E. The presence of cold surface waters in the North Atlantic
4. It can be inferred from the passage that in sediment cores from the North Atlantic's deep waters, the portions that correspond to the Little Ice Age
- A. differ very little in composition from the portions that correspond to the Medieval Warm Period
 - B. fluctuate significantly in composition between the portions corresponding to the 1300s and the portions corresponding to the 1700s
 - C. would be likely to contain a proportion of red-stained grains closer to 17 percent than to 5 percent
 - D. show a much higher proportion of red-stained grains in cores extracted from the far north of the North Atlantic than in cores extracted from further south
 - E. were formed in part as

Ans: CEEC



二十一、松鼠覓食

標題	文體類型	文章內容與解析	考試日期
松鼠覓食	總結文 1	<p>V1. 松鼠找吃的，說嗅覺起很關鍵作用，但是研究表明他們的視覺也是有作用的</p> <p>舊理論：科學家做個 study，看這些松鼠 squirrel 是怎樣找食物，一開始大家認為視覺探測是小松鼠的主要搜尋機制。</p> <p>實驗 1：一開始的實驗是一堆腐木，很容易發現吃的。</p> <p>實驗 2：後來又做了實驗是只有一根木頭（有題，問這個實驗的目的是為了什麼）。</p> <p>舊理論的缺失：但是把那些藏有食物（fungi）的 wood 樹枝有些能看到，但是沒有被小松鼠挖出來，說明有可能是嗅覺 olfaction 的作用</p> <p>最後一句話說 however，這個小松鼠經常把挖出來的樹枝又埋進去，或者是每次回來都先去上次挖過的地方，這樣也是很好的（有題）。</p> <p>V2.（短文章）對 North XX 地區松鼠的研究，牠們的食物是一種 fungi。</p> <p>研究人員發現它們找吃的主要靠嗅覺，把 fungi 埋在不同的地方，比如埋在地下的大多數被找到了；視覺也有用，只有 17/30 的地上的被找到。又說到腐木（長 fungi 的地方吧），研究發現僅有腐木，松鼠不會去附近找吃的，但是如果有這種東西再把 fungi 埋在地下，且比單獨埋 fungi 更容易找到。最後還發現這種松鼠每年都會到同樣的地方，說明這種東西能刺激它們找到。</p> <p>(V1) 【問題】1、哪個是正確的？（我選了視覺也有用。）</p> <p>【問題】2、為何要做單獨埋腐木的實驗？</p> <p>（我選的答案大概意思是：因為後面有個實驗“腐木和 fungi 埋一起時，證明腐木能刺激松鼠更容易找到”，所以要排除單獨腐木的影響。）</p> <p>(V2)其中一個問題的答案：“有的松鼠只靠嗅覺是吃不到 XXXX 的”</p> <p>只有木頭沒有 fungi 的實驗有什麼作用的</p> <p>提醒下大家：A 選項裡面說嗅覺是一個更重要的因素 in 找食物的嘗試中 than in others，不要忽略那個 in，它不是說嗅覺比視覺更重要，所以不對！這題我選“視覺對於松鼠覓食來說不是決定性因素”。</p>	(201207) (201208)

The objective of this study was to evaluate how northern flying squirrels (*Glaucomys sabrinus*) locate truffles (*Gautieria monticola*), a subterranean and ephemeral but primary food source. Thus, we evaluated the importance of three factors to the foraging behavior of northern flying squirrels: (i) olfactory chemicals that emanate from truffles; (ii) the presence of coarse woody debris (decaying logs), which are often associated with fungi; and (iii) we explored the potential role animal memory could play in truffle detection as well. In a foraging arena, squirrels successfully retrieved buried truffles that lacked aboveground cues in 19 of 30 trials and failed to search near treatments that lacked truffles altogether, confirming the importance of olfaction to squirrel foraging. However, squirrels also retrieved truffles that were associated most frequently with surface logs (27 of 30). In addition, the initial detection rate of the truffle + log treatment was significantly greater than the truffle-only treatment. Thus, although squirrels search for truffles primarily using olfaction, they may also benefit by searching near coarse woody debris on the forest floor as an aboveground cue to truffle locations. In addition, because 82% of Sierra Nevada truffle-fruited locations that were marked in 1996 yielded truffles again the following 2 years, mycophagous animals like northern flying squirrels may benefit by memorizing fruiting locations and foraging at these same locations from year to year.



二十二、評論劇作家安德魯·洛伊·韋伯

標題	文體類型	文章內容與解析	考試日期
評論劇作家安德魯·洛伊·韋伯	總結文 2	<p>V1. Webber 提到了他對普契尼的模仿，以及一個幾乎看不出普契尼影響的特例，即 cats 裡的 Growltiger's Last Stand</p> <p>V2. 提出舊理論：Drama critics 認為 Baron Lloyd-Webber, the composer of musical 的作品是 derivative 普契尼的。</p> <p>提出新理論：作者對這個觀點是否定的，說了 drama critics 們相比於真正的音樂評論家的短處，然後說樂評家認為，Webber 的作品 aside from Growltiger's Last Stand 是 exceptional，其他都應該屬於 original 的，沒有普契尼的成分。</p> <p>【問題】 原文舉了 aside from 的這個作品的用處，暗示了這個東西有什麼。</p> <p>【答案】 含有普契尼的元素。</p>	(201207)

A standard criticism of Lloyd Webber, especially from drama critics, is that his music is derivative—a gloss on his betters when it is not an outright theft. Since most drama critics are, to put it charitably, nonmusical, this is an odd criticism, and one that smacks of received opinion: "Puccini-esque" is a term one encounters often in criticism of Lloyd Webber's music, but aside from "Growltiger's Last Stand," which parodies the first-act love duet from *Madama Butterfly*, there is precious little Puccini in *Cats*.

Indeed, Lloyd Webber has always been more highly regarded by music critics, who not only know the repertoire he is alleged to be pilfering, but also can place him correctly in a dramatic-operatic context. Far from being the love child of Puccini and Barry Manilow, as some would have it, Lloyd Webber is more correctly seen as a kind of latter-day Giacomo Meyerbeer, the king of the Paris Opera in the mid-19th century, whose name was synonymous with spectacle. But a little ignorance goes a long way, and with "Memory" the notion that Lloyd Webber is a secondhand pastiche artist—if not an outright plagiarist—got its start. This is partly Lloyd Webber's own fault. His melodies sometimes skirt perilously close to earlier classical and Broadway sources, and while the showbiz axiom that "good writers borrow, great writers steal" may well apply, it is also true that some of his tunes, both large and small, evoke earlier sources. As drama critic John Simon wrote after the première of *Phantom*: "It's not so much that Lloyd Webber lacks an ear for melody as that he has too much of a one for other people's melodies.... I predict that Gershwin and Rodgers, let alone Puccini and Ravel (another of his magnets), have nothing to fear from him." Other critics have been less subtle: "Webber's music isn't so painful to hear, if you don't mind its being so soiled from previous use," wrote Michael Feingold of the *Village Voice*.



二十三、藍脫序星的兩種過程形成

標題	文體類型	文章內容與解析	考試日期
藍脫序星的兩種過程形成		藍脫序星 (blue straggler) 形成的原因：兩個 low-mass 星碰撞的觀點 vs globular 星系裡多個星相互吸引的觀點。 相互環繞的雙星對於其他星球來說目標更大，而且在某些星系裡，low-mass 星的數量不足以解釋 blue straggler 的數量。	(201210)

Vampires and collisions rejuvenate stars

Using the NASA/ESA Hubble Space Telescope, astronomers have uncovered two distinct kinds of "rejuvenated" stars in the globular cluster Messier 30. A new study shows that both stellar collisions and a process sometimes called vampirism are behind this cosmic "face lift". The scientists also uncover evidence that both sorts of blue stragglers were produced during a critical dynamical event (known as "core collapse") that occurred in Messier 30 a few billion years ago.

Stars in globular clusters [1] are generally extremely old, with ages of 12-13 billion years. However, a small fraction of them appear to be significantly younger than the average population and, because they seem to have been left behind by the stars that followed the normal path of stellar evolution and became red giants, have been dubbed blue stragglers [2]. Blue stragglers appear to regress from "old age" back to a hotter and brighter "youth", gaining a new lease on life in the process. A team of astronomers used Hubble to study the blue straggler star content in Messier 30, which formed 13 billion years ago and was discovered in 1764 by Charles Messier. Located about 28 000 light-years away from Earth, this globular cluster — a swarm of several hundred thousand stars — is about 90 light-years across.

Although blue stragglers have been known since the early 1950s, their formation process is still an unsolved puzzle in astrophysics. "It's like seeing a few kids in the group picture of a rest-home for retired people. It is natural to wonder why they are there," says Francesco Ferraro from the University of Bologna in Italy, lead author of the study that will be published this week in Nature [3]. Researchers have been studying these stars for many years and knew that blue stragglers are indeed old. They were thought to have arisen in a tight binary system [4]. In such a pair, the less massive star acts as a "vampire", siphoning fresh hydrogen from its more massive companion star. The new fuel supply allows the smaller star to heat up, growing bluer and hotter — behaving like a star at an earlier stage in its evolution.

The new study shows that some of the blue stragglers have instead been rejuvenated by a sort of "cosmic facelift", courtesy of cosmic collisions. These stellar encounters are nearly head-on collisions in which the stars might actually merge, mixing their nuclear fuel and re-stoking the fires of nuclear fusion. Merged stars and binary systems would both be about twice the typical mass of individual stars in the cluster.

"Our observations demonstrate that blue stragglers formed by collisions have slightly different properties from those formed by vampirism. This provides a direct demonstration that the two formation scenarios are valid and that they are both operating simultaneously in this cluster," says team member Giacomo Beccari from ESA.

Using data from the now-retired Wide Field Planetary Camera 2 (WFPC2) aboard Hubble, astronomers found that these "stragglings" stars are much more concentrated towards the centre of the cluster than the average star. "This indicates that blue



stragglers are more massive than the average star in this cluster," says Ferraro. "More massive stars tend to sink deep into the cluster the way a billiard ball would sink in a bucket of honey."

The central regions of high density globular clusters are crowded neighbourhoods where interactions between stars are nearly inevitable. Researchers conjecture that one or two billion years ago, Messier 30 underwent a major "core collapse" that started to throw stars towards the centre of the cluster, leading to a rapid increase in the density of stars. This event significantly increased the number of collisions among stars, and favoured the formation of one of the families of blue stragglers. On the other hand, the increase of stellar crowding due to the collapse of the core also perturbed the twin systems, encouraging the vampirism phenomenon and thus forming the other family of blue stragglers. "Almost ten percent of galactic globular clusters have experienced core collapse, but this is the first time that we see the effect of the core collapse imprinted on a stellar population," says Barbara Lanzoni, University of Bologna.

"The two distinct populations of blue stragglers discovered in Messier 30 are the relics of the collapse of the core that occurred two billion years ago. In a broad context our discovery is direct evidence of the impact of star cluster dynamics on stellar evolution. We should now try to see if other globular clusters present this double population of blue stragglers," concludes Ferraro.

Notes

[1] Globular clusters are dense agglomerations of several hundred thousand stars. Present among the earliest inhabitants of our Milky Way, they formed in the vast halo of our galaxy before it flattened to form a pancake-shaped spiral disc. Star formation essentially stopped in globular clusters 13 billion years ago, so astronomers expect to find only old stars and they use globular cluster ages as a benchmark for estimating the age of the Universe.

[2] In 1953, astronomer Allan Sandage found a puzzling new population of stars that seemed to go against the rules of stellar evolution in globular clusters. Sandage detected hot young blue stars in the globular cluster Messier 3, and subsequently in other globular clusters. He dubbed them stragglers because they looked like they were trailing or left behind by other blue stars in the cluster that had long ago evolved to the red giant stage.

[3] This research was presented in a paper that appears in the 24 December 2009 issue of Nature, "Two distinct sequences of blue straggler stars in the globular cluster M30", by F. R. Ferraro et al.

[4] In 1964 astronomers Fred Hoyle and W.H. McCrea independently suggested that blue stragglers result when two stars capture each other and form a tight binary system.



藍脫序星可經由兩種過程形成

義大利波隆納大學（University of Bologna）天文學家 Francesco Ferraro 等人，利用哈柏太空望遠鏡（Hubble Space Telescope）在年老的球狀星團 M30 中，發現了 2 種截然不同的「藍脫序星（blue stragglers）」。他們發現藍脫序星這種年輕恆星可經由 2 種途徑形成：一種是經由恆星碰撞形成（stellar collisions），另一種則是像個吸血鬼般、經由榨取其他恆星的物質而形成（vampirism）。此外，這些天文學家還發現 M30 中這 2 種藍脫序星都是在約數十億年前一場「核區塌縮（core collapse）」的關鍵力學事件中形成。

M30 位在摩羯座，距離地球約 28,000 光年，數十萬顆恆星擠在約 90 光年的範圍內，可見其擁擠的程度。球狀星團中的恆星通常都非常古老，年齡高達 120-130 億年。不過，偶爾會有一些相對來說比較年輕的恆星藏身其中；這些年輕恆星與絕大多數已經經過長時間正常演化成紅巨星的成員星不同，由於年紀似乎返老還童，或者說是重獲新生，表面溫度偏高而呈現藍色，因而稱為「藍脫序星」。

早在 1950 年代，天文學家就已發現藍脫序星的存在，但對於其形成原因一直有所爭議。經過多年研究，他們瞭解這些藍脫序星其實仍是年老恆星，可能是原本為緊密雙星系統的成員，質量較小的子星如同吸血鬼般，從質量較大的子星處榨取質量，使較小的恆星成長、加熱，變的愈來愈熱、愈來愈藍，像是一顆處在剛誕生階段的新恆星一樣。

Francesco Ferraro 等人的新研究則顯示：某些藍脫序星不是經由上述這樣的榨取過程形成，而是經由碰撞過程形成。這些恆星幾乎正面衝撞而合併，所有恆星物質混合，然後再重新點燃新恆星的核融合反應。如此一來，不論是雙星系統或是碰撞合併所產生的藍脫序星，其質量應該都會是星團中一般典型恆星的 2 倍左右。Francesco Ferraro 等人的觀測資料還顯示：愈靠近星團較中心的地方，藍脫序星愈多，顯示藍脫序星的質量的確比星團其他典型恆星還大，才會「沈」到星團中心。但是經碰撞合併的藍脫序星，性質會與榨取過程形成的稍有不同。

此外，從觀測資料分析的結果，顯示 M30 大約在 20 億年前經歷核區塌縮的過程，大量恆星被拋往星團中心區域，使星團中心的恆星密度快速增加，更容易因碰撞引起的合併而形成碰撞型藍脫序星。另一方面，星團中心密度增加也使得雙星系統備受擾動，增加榨取型藍脫序星的形成機會。將近有 10% 的球狀星團曾經歷這樣的核區塌縮過程，但這是首次天文學家發現核區塌縮與藍脫序星有關的直接證據。



二十四、大鍵琴家：蘭道芙絲卡

標題	文體類型	文章內容與解析	考試日期
蘭道芙絲卡	長閱讀 敘述文	<p>V1. 有一段時間專家認為只有彈琴能表現出作曲者的風格的才能算鋼琴家。Wanda Landowska 出生在 romantic 流行的時代但是她彈琴風格確很好的能表現 Baroque 曲風。她不被認為是 classist。她彈 Bach, Scarlatti 的作品很好。Baroque 音樂是淡定的不帶 emotion 的。Wanda Landowska 彈琴呢技巧手法都很厲害。最後一節說 Bach 一開始寫的作品都不是為了 piano 寫的是為 harpsichord。然後說後來大家都不用 piano 彈 Bach, Scarlatti 也不彈了。</p> <p>【問題】作者提及 L 的目的 答案：為了證明傳統觀點被否定了</p> <p>【問題】Landowska 偏向彈以下哪種類別的 Scarlatti 的音樂。</p> <p>【問題】為什麼她不被認為是 classist。</p> <p>【問題】有考其中一個音樂家的創作特點</p> <p>V2. Romantic interpretation of baroque and classic music</p> <p>第一段：A Romantic female musician called X. unlike other musicians who likes to add their own interpretation and emotion into the play, she faithfully keeps the original idea of the composers. She reconstructed what the composers wanted the piece to be.</p> <p>第二段：But she is not absolutely lack of emotion. while staying faithfully with the composer, she still take all kinds of liberties to express her own interpretation. So she is not a classicist, but a romantic performer.</p> <p>第三段：In Baroque and Classic time, piano not yet invented. Bach (Baroque)'s pieces are mostly on harpsichord. Thanks to X, people no longer play Bach's pieces on piano, but on harpsichord, even if the transcription was made by Liszt. (transcription from harpsichord to piano)</p> <p>【問題】General attitude to X---> unrestrained praising!</p>	(201207) (201208) (201211)

When, in the early twentieth century, the concept of the virtuoso - as - hero was retired, as a replacement came the scholar - pianist, the musician - pianist, the recreator of the composers' thoughts. With this change came the abdication of technique as technique. Virtuosity in and of itself, indeed, became something of a dirty word.

One of the important new figures, though she was a harpsichordist and not a pianist, was Wanda Landowska, she was the one who demonstrated how Bach, Handel, Scarlatti and Couperin sounded on the instrument for which their music was originally conceived. It would be a mistake to consider Landowska a classicist, however. She had been born in an age of romantic playing, an age dominated by the figures of Liszt, Leschetisky and their pupils. Thus she grew up with certain romantic traditions of performance and whatever the stringency of her musical scholarship, for Landowska knew how to hold an audience breathless and when she gave a recital, it was to the accompaniment that all great artists receive deathlike silence and rapt attention.

Her playing was romantic, but who is to say that it was not closer to Bach than the dry munching of some later harpsichordists? She had a miraculous equality of touch, with a left hand that seemed to say the least, colorful. But no artist in this generation



(and, one is confident, in any generation) could clarify with such deftness the polyphonic writing of the baroque masters. And none could make the music so spring to life.

Her secret was a lifetime of scholarship, plus perfect technical equipment and resilient rhythm, all combined with knowledge of just when not to hold the printed note sacrosanct. Of course, that alone demands a lifetime of knowledge. She was a genius at underlining the dramatic and did have meaning and emotional significance. She took liberties, all kinds of liberties, but like all great artists she could get away with them. In short, her entire musical approach was romantic: intensely personal, full of light and shade, never pedantic.

Thanks to Landowska, Bach began to sound thick when played on the piano. One by one, pianists stopped playing Bach as adapted by Liszt, Bach as adapted by Tausig. Then they began to think twice before performing any kind of baroque music, including even Scarlatti. The piano repertoire, it began to be felt, was extensive enough without reverting to transcriptions and Bach and Scarlatti on the piano were in a way, transcriptions no matter how faithfully the original notes were played.

In line with this kind of purity came the emphasis on the back to nature study of the composers' manuscripts that has continued to the present, will continue and is something new in the scheme of things.

背景知識：

女性大鍵琴家蘭道芙絲卡是二十世紀第一位將大鍵琴這種樂器，重新帶進音樂廳，提醒人這種音樂和其樂曲之美的演奏家。她來自波蘭，在二十世紀初那個人類進入工業革命時代的潮流中，她和一群在巴黎的音樂家，共同提倡新古典主義運動，也因此給了大鍵琴近兩百年來低落地位的重新提振。生於一八七九年的她，十四歲就從華沙音樂院畢業，之後投入巴黎的古歌唱學院，二十三歲開始投身大鍵琴演奏和研究的工作。

一開始，她所演奏的琴都要特別委託製琴商製作，因為古琴都已不堪使用，她的大鍵琴是和古代大鍵琴不同的巨型大鍵琴，能發出巨大的音響，以符合在現代大型演奏廳中演出。憑著這架琴，蘭道芙絲卡逐漸說服人們，有許多巴洛克樂曲，在大鍵琴上演奏有著比在鋼琴上演奏更優美的效果。

她從一九二三年開始灌錄大鍵琴唱片，對巴哈音樂更有著奇大無比的熱情。一九三三年她第一次灌錄巴哈的郭德堡變奏曲，這是她耗費四十年心力研究巴哈手稿後的心得展現，之後便陸續灌錄巴哈鍵盤作品。

蘭道芙絲卡對大鍵琴的熱情，也激勵了許多近代鋼琴家像是法雅、普朗克等人為他創作大鍵琴協奏曲。



二十五、瑪雅旱災

標題	文體類型	文章內容與解析	考試日期
瑪雅旱災	說明文	<p>瑪雅人南邊的房子好像是被遺棄了，有兩種還是三種猜想</p> <p>但是後來說好像是因為地下水還有乾旱的問題 導致他們遺棄房子了。。。。</p> <p>乾旱時期造成缺水，但南部最嚴重，中部次之，北部最厲害，原因大概是南部人民對降雨的依靠更為嚴重。</p> <p>題目：下列哪個是南部受災更嚴重的原因</p> <p>答案：對降雨依賴更多</p> <p>題目：dependent on 的同義詞轉換</p> <p>答案：reliant</p>	(201206)

TPO 類似背景考題

To understand the ancient Maya people who lived in the area that is today southern Mexico and Central America and the ecological difficulties they faced, one must first consider their environment, which we think of as "jungle" or "tropical rainforest." This view is inaccurate, and the reason proves to be important. Properly speaking, tropical rainforests grow in high-rainfall equatorial areas that remain wet or humid all year round. But the Maya homeland lies more than sixteen hundred kilometers from the equator, at latitudes 17 to 22 degrees north, in a habitat termed a "seasonal tropical forest." That is, while there does tend to be a rainy season from May to October, there is also a dry season from January through April. If one focuses on the wet months, one calls the Maya homeland a "seasonal tropical forest"; if one focuses on the dry months, one could instead describe it as a "seasonal desert."

From north to south in the Yucatan Peninsula, where the Maya lived, rainfall ranges from 18 to 100 inches (457 to 2,540 millimeters) per year, and the soils become thicker, so that the southern peninsula was agriculturally more productive and supported denser populations. But rainfall in the Maya homeland is unpredictably variable between years; some recent years have had three or four times more rain than other years. As a result, modern farmers attempting to grow corn in the ancient Maya homelands have faced frequent crop failures, especially in the north. The ancient Maya were presumably more experienced and did better, but nevertheless they too must have faced risks of crop failures from droughts and hurricanes.

Although southern Maya areas received more rainfall than northern areas, problems of water were paradoxically more severe in the wet south. While that made things hard for ancient Maya living in the south, it has also made things hard for modern archaeologists who have difficulty understanding why ancient droughts caused bigger problems in the wet south than in the dry north. The likely explanation is that an area of underground freshwater underlies the Yucatan Peninsula, but surface elevation increases from north to south, so that as one moves south the land surface lies increasingly higher above the water table. In the northern peninsula the elevation is sufficiently low that the ancient Maya were able to reach the water table at deep sinkholes called cenotes, or at deep caves. In low-elevation north coastal areas without sinkholes, the Maya would have been able to get down to the water table by digging wells up to 75 feet (22 meters) deep. But much of the south lies too high above the water table for cenotes or wells to reach down to it. Making matters worse, most of the Yucatan Peninsula consists of karst, a porous sponge-like limestone terrain where rain runs straight into the ground and where little or no surface water remains available.



How did those dense southern Maya populations deal with the resulting water problem? It initially surprises us that many of their cities were not built next to the rivers but instead on high terrain in rolling uplands. The explanation is that the Maya excavated depressions, or modified natural depressions, and then plugged up leaks in the karst by plastering the bottoms of the depressions in order to create reservoirs, which collected rain from large plastered catchment basins and stored it for use in the dry season. For example, reservoirs at the Maya city of Tikal held enough water to meet the drinking water needs of about 10,000 people for a period of 18 months. At the city of Coba the Maya built dikes around a lake in order to raise its level and make their water supply more reliable. But the inhabitants of Tikal and other cities dependent on reservoirs for drinking water would still have been in deep trouble if 18 months passed without rain in a prolonged drought. A shorter drought in which they exhausted their stored food supplies might already have gotten them in deep trouble, because growing crops required rain rather than reservoirs.



二十六、瑪雅文明

標題	文體類型	文章內容與解析	考試日期
瑪雅文明	總結文 2	<p>V1. Maya，有兩種對 environment 的看法。</p> <p>提出舊理論：某名專家又出來對 Maya 文明評估了一下。</p> <p>提出新理論：別的專家又出來了，來反對之前的那位女專家。</p> <p>V2. 提出舊理論：某種 B 果樹在瑪雅廢墟那塊長得很好，這個是瑪雅文明的證明</p> <p>提出新理論：但是有人反對，說是因為蝙蝠吃了果子排出種子，才造成了這片果樹林和瑪雅沒有關係。</p> <p>新理論的缺失：但是後面又有證明說這片果林的產量是其他地方的果林的產量的 2 倍，說明還是瑪雅文明的影響。</p> <p>另外提出一個 support idea，並說明這個 support 是關於 B 樹 genetic 的研究，且說明此 support 對第一段推論而言是更重要的證明：Maya 的 B 樹，比另外 V 地的 B 樹要長的好。</p> <p>題目：為什麼說第二段關於 genetic 的研究是對第一段更進一步的證明，作者用此暗示？</p> <p>選項：V 地的果實可能比較 inferior</p> <p>選項：M 跟 V 的果實基因差很多</p>	<p>(201112)</p> <p>(201202)</p> <p>(201204)</p> <p>(201206)</p> <p>(201209)</p> <p>(201210)</p>

英文文章出處：[Observations on Maya subsistence and the ecology of a tropical tree](#)

考過同學總結：論文文章很長，估計 ETS 篩選了後面作者談到 frugivorous bats eat the fruit and later drop the seed intact...bat-dispersed seed...總而言之，Maya ruins 旁邊有很多 B. alicastrum is a result of normal ecological process does not in itself negate the possibility that the tree was used by the Maya. 因為 B. alicastrum 很有 nutrition，是 Maya 人的 staple food.

Most of the animals which feed on the fruit of *B. alicastrum* eat the seed as well, and, therefore, function more as seed predators than as dispersal agents. Frugivorous bats, however, display the interesting behavior of collecting the fruit, flying to their roosts, and later eating only the fleshy pericarp and dropping the seed intact. Bats of the genus *Artibeus* have been shown to disperse large quantities of *B. alicastrum* seed in this manner, the fruit comprising the major part of their diet when available (Vazquez-Yanes et al. 1975). Puleston (1968:56-57) reviewed the dispersal of ramon seeds by *Artibeus* bats but later rejected the possibility at they were an important seed vector to the ruins. This is surprising in light of his observations that "large numbers of bats occupy the inner chambers and vaults of the larger palaces and temples," that "their nests are littered with whole ramon seeds" and that "the seeds can apparently be carried great distances if the bats have young." I have seen similar accumulations of seeds and seedlings around the ruins of Palenque and Bonampak in Chiapas, and under bat roosts in mango plantations in Veracruz where the nearest ramon tree was more than 5 km away. A more reasonable explanation for the commonly observed aggregations of *B. alicastrum* near ruins, therefore, is the competitive advantage this species possesses on limestone soils coupled with the continual input of bat-dispersed seed.



二十七、寂靜的春天

標題	文體類型	文章內容與解析	考試日期
寂靜的春天	總結文 2	<p>提出舊理論：Rachel Carson 寫的《寂靜的春天》(silent spring)，主要是反對使用 DDT，提出了許多所有生物，環境都會受到化學物質影響的例子。</p> <p>對舊理論提出反駁：有一個人提出反面的意見，說其他的生物實際上沒有被影響。</p> <p>對反駁的理由提出反對意見：最後又說這種評論是不對的，並敘述不對的原因。最後，這本書還是很重要，甚至影響了其他的作者，如：(舉了幾個人名)</p> <p>題目：文章架構</p> <p>題目：作者態度</p> <p>題目：為什麼那個人反對)</p>	(201211)

英文背景知識：

WASHINGTON, D.C. — Fifty years ago, Rachel Carson wrote and published Silent Spring. Carson was ahead of her time. She said pesticides like DDT were damaging the environment and human health. Although the book became an inspiration for the environmental movement, the battle for the environment continues.

In the 1950s, the U.S. Department of Agriculture was spraying more than a quarter-million kilograms of pesticides each year. Silent Spring, by Rachel Carson, revealed that pesticides like DDT were lethal not only for insects but for all living things.

"Silent Spring essentially told the reading public that human beings could alter the natural world in ways that were quite deadly and that it could be potentially lethal to human beings as well as to other parts of the natural world," said Linda Lear, the author of a biography on Carson.

More than six million copies of the book have been sold in the U.S. It's been translated into some 30 languages. In the Washington suburbs, the house where Carson wrote Silent Spring is now a National Historic Landmark. Carson was a pathbreaker.

"In Silent Spring, she is writing in a voice that I call apocalyptic writing," added Linda Lear. "She is trying to sound an alarm to get our attention."

Thirty years after Silent Spring was published, public television, in its program The American Experience, called the book one of the most important of our time.

But there were dissenters. Norman Borlaug, the 1970 Nobel Peace Prize winner, led the defense of pesticides.

"We're having troubles now feeding this hungry world," said Borlaug. "If you remove DDT with the hysteria that is present in the USA, the U.S. will be importing food, only there won't be any place from where to import it."

By 1972, DDT was banned for agricultural use in the U.S. But thousands of new chemicals were being developed.

For years, the U.S. Senate's Committee on the Environment has been trying to ban or control hundreds of chemicals from agricultural products and consumer goods.

"This committee heard from CDC [Centers for Disease Control] officials who told us their scientists found 212 industrial chemicals, including six carcinogens, coursing through Americans' bodies," said Democratic Senator Frank Lautenberg.

In 2006, the World Health Organization announced plans to use DDT again - indoors - in its campaign against malaria.

Syngenta is a major producer of agricultural chemicals. Like others in the industry, it says its chemicals are safe if



used properly.

"We try to do every single study that is necessary to support the safety characteristics of the product." said Tim Pastoor, the company's principal scientist.

Fifty years after Silent Spring, millions of kilograms of new pesticides and other chemicals are being sprayed across US farmlands. And the environmental movement is still fighting back.



二十八、超新星（一）

標題	文體類型	文章內容與解析	考試日期
超新星	總結文 1	<p>提出現象：超新星爆發的顏色，有時候看起來比本來要暗（dimmer）。</p> <p>現象解釋 1，但提出證據反駁：星際塵埃的影響。有個解釋是因為塵埃 dust 遮蔽（吸收）了很多藍光，使得我們看到的更多是紅光（redder）。而且如果 dust 不是均勻分佈的造成的結果也很難講（有題）。但又說不應該是塵埃的影響，因為不同位置塵埃密度不同會導致不同時期觀察到顏色有 variation（註：因為望遠鏡是移動的，所以多次觀察到的光的形近路線不同）。</p> <p>現象解釋 2，但提出證據反駁：另外一個解釋是因為重力的影響（lensing），但是重力對光線使光線偏離的影響，在兩星球隔得比較遠時才會發生。經計算，在超新星到地球這個觀測距離上比較小，distance 不足以導致顏色的改變。</p>	<p>(201210)</p> <p>(201211)</p> <p>(201212)</p> <p>(201302)</p>

Supernovae & Obscuration by dust

Recently, significant progress has been made by using Type Ia supernovae as "standardizable candles".

Supernovae are rare - perhaps a few per century in a Milky-Way-sized galaxy - but modern telescopes allow observers to probe very deeply into small regions of the sky, covering a very large number of galaxies in a single observing run. Supernovae are also bright, and Type Ia's in particular all seem to be of nearly uniform intrinsic luminosity (absolute magnitude, typically comparable to the brightness of the entire host galaxy in which they appear). They can therefore be detected at high redshifts, allowing in principle a good handle on cosmological effects.

Obscuration by dust is the leading concern about the reliability of the supernova results. Ordinary astrophysical dust does not obscure equally at all wavelengths, but scatters blue light preferentially, leading to the well-known phenomenon of "reddening". Spectral measurements by the two supernova teams reveal a negligible amount of reddening, implying that any hypothetical dust must be a novel "grey" variety. This possibility has been investigated by a number of authors. These studies have found that even grey dust is highly constrained by observations: first, it is likely to be intergalactic rather than within galaxies, or it would lead to additional dispersion in the magnitudes of the supernovae; and second, intergalactic dust would absorb ultraviolet/optical radiation and re-emit it at far infrared wavelengths, leading to stringent constraints from observations of the cosmological far-infrared background. Thus, while the possibility of obscuration has not been entirely eliminated, it requires a novel kind of dust which is already highly constrained (and may be convincingly ruled out by further observations).



二十九、白靴兔的數量

標題	文體類型	文章內容與解析	考試日期
白靴兔的數量	說明文	<p>提出一種現象： snowshoe hare (白靴兔)，說這種動物的數量跟普通的動物不同，它們的 population 循環很 regular，有明確的高峯期，以及不同地域的這種動物的數量變化周期都很相似。而且可以很快減少和增加，換言之波動比較大。</p> <p>現象解釋 1： 然後科學家就想解釋這一現象，說是新生的兔子比較容易受到影響，因為當兔子數量 (population) 增加時就營養不良了：兔子越多糧食越少，然後兔子就開始減少了。</p> <p>現象解釋 2： 另外還有一個原因是它們的捕食者，因為他的捕食者 (predator) 有很強的移動性，導致他們到不同的地方捕食這種動物，使不同地區的增減變化差不多 (The high mobility of predator render the synchrony of different area possible)。</p> <p>**邏輯鏈： 兔子多——食物少——兔子少——捕食者可以捕捉到的兔子更加少——兔子更加少——食物多了——兔子多了。</p> <p>題目： 其他動物和這種動物的區別</p> <p>答案： 不好預測他們的變化週期。(因為波動比較大)</p> <p>題目： 為什麼這種動物的變化在不同地域之間是相似的</p> <p>答案： 他的捕食者很強的移動性。</p>	(201207) (201210) (201211)

Snowshoe hare population

The snowshoe hare is one of the northern mammals that go through periodic cycles of changes in their populations. Over a period of years, their population will increase in numbers and then suddenly crash to very low numbers, only to rise again. Snowshoe hare tend to cycle about once every ten years. The snowshoe hare cycle is one of the best known and fur trappers and traders working in northern Canada first described it. In 1865, traders with the Hudson's Bay Company were flooded by hare pelts brought in by trappers. But, by 1870, only a few hare pelts trickled in. This pattern of high and low abundance of hare pelts repeated itself over and over, roughly every ten years.

Snowshoe hares are a dominant herbivore in northern forest ecosystems. In Alaska and western Canada, their populations cycle over 8 to 11 years. The difference in densities and abundance during the cycle are extreme. Densities as high as 4,000 hares per square kilometer (or 10,000 hares per square mile) have been estimated at the peak (or high point) of the cycle. These populations can "crash" to densities of less than one hare per square kilometer (or 2.6 hares per square mile) within a period of one year. The populations slowly increase to peak densities over the next 6 to 13 years. The densities during peak years, however, are not always the same.

Just what is it that drives the snowshoe hare cycle? This question has puzzled people living in northern areas and scientists for many years. On a broad scale, it may be the 22-year sunspot cycle and its effects on boreal forest weather patterns or forest fires. On a smaller scale, the cycles may be affected by over browsing the food supply, predators, shock disease due to stress, parasites, or a combination of these. The primary theory pertaining to the snowshoe hare population cycle describes the mechanics as a combination of predators and browse (food) availability. During the peak of their cycle, hares eat a large proportion of the shrubs available in their area. They



can also kill many of the shrubs in their area by chewing through the outer layer of bark. Over-browsing of shrubs results in a food-shortage that causes malnourishment, starvation, and reduced reproduction. This leads to the start of the population crash or decline. Also, as food supplies decrease, the health of hares declines and makes many individuals more vulnerable to predators and disease. In the western Yukon, scientists believe that the hare cycle is caused by changes in food supply and predation. The declines and increases in the population of hares were influenced by the reproductive rates of adult hares and the survival rates of all ages of hares.



三十、帝王蝶

標題	文體類型	文章內容與解析	考試日期
帝王蝶	Must be true Strengthen Support	<p>V1. 一種蝴蝶會飛很遠然後 lay eggs on milkweed, 卵孵化後會長成 caterpillar, 在幼蟲的生長過程中會吸收到 milkweed 裏面的一中物質, 這種物質和地域有關, 然後會留在 caterpillar 體內。</p> <p>【答案】 lay eggs 的蝴蝶體內的這種物質, 和 caterpillar 裏面的應該不一樣。</p> <p>V2. 一種蝴蝶在不同地方含某種東西不同的植物產卵, 然後生出來的毛毛蟲身體中 A 的含量也不一樣, 長大飛到的產卵地方也不同。問什麼可以加強這個推斷?</p> <p>【選項】 這個種物質是唯一能被檢查出來的</p> <p>有相同 A 種物質的蝴蝶還是回到出生地方產卵</p> <p>蝴蝶不能吸收或積累其他地方的 A</p> <p>蝴蝶長大以後不吃葡萄糖</p> <p>題目和以下不同, 但也是蝴蝶產卵。問的是文章支持了那個選項, 我選的大意是不同 region 的 butterfly 所含的 glycosides 不同。</p>	(201111) (201207) (201211) (201302)

Upon maturity, monarch butterflies travel hundreds of miles from their places of origin and lay their eggs on milkweed. The caterpillars that emerge feed on milkweed and absorb the glycosides in milkweed sap. The specific glycosides present in milkweed differ from region to region within the monarch butterfly's range. Mature butterflies retain the glycosides they absorb as caterpillars. Clearly, therefore, the glycosides in a mature monarch butterfly could be used to determine its place of origin.

Which of the following, if true, most strengthens the argument?

- Mature monarch butterflies do not feed on parts of milkweed that contain glycosides.
- The glycosides in milkweed sap are slightly toxic to caterpillars of other species.
- The vast majority of the monarch butterflies that are laying eggs in a given region will have traveled there from a single region.
- There are substances other than glycosides in milkweed sap that accumulate in a monarch caterpillar and are retained in the body of the mature butterfly.
- There are certain glycosides that are found in the sap of all milkweeds, no matter where they grow within the monarch butterfly's range.

Answer: A



三十一、胡蜂吃天牛

標題	文體類型	文章內容與解析	考試日期
引進胡蜂吃天牛	Assumption	一個叫 XX stem 的蟲對 north American 的 corn 造成很大的傷害，所以建議引進一個專吃這個蟲的另一種蟲。 這樣 corn 的產量會大大提高，而吃蟲的蟲不會吃其他東西所以很安全。 問這種基於那些 assumption 【答案】 這種黃蜂不會被北美的天敵吃掉。	(201208)

Stem borers are insect pests that often ruin North American corn crops. On some other continents, crop damage by stem borers is controlled by a certain species of wasp. Since these wasps eat nothing but stem borers, importing them into North America will keep crop damage from stem borers under control without endangering other North American insect species.

Which of the following is an assumption on which the argument depends?

- (A) Corn is the principal food of stem borers that live on continents other than North America.
- (B) The wasps are capable of surviving in North America long enough to eat significant numbers of stem borers.
- (C) No wasp in North America is closely related to the species of wasp that eats stem borers.
- (D) On continent other than North America, the wasps control stem borers more effectively than does any other pest control measure.
- (E) Corn crops on continents other than North America are not damaged by any insect pests other than stem borers.

天牛是一種經常毀壞北美穀類莊稼的有害昆蟲。在其他一些大陸上，天牛對莊稼的毀壞可以被某黃蜂所控制。因為這種黃蜂只以天牛為食，將其引進北美可使莊稼免遭天牛的毀壞且不危害其他北美昆蟲。

下面哪一個是上論述所基於的假設？

- (A) 穀物是生長在北美以外大陸的天牛的主要食物。
- (B) 這種黃蜂能夠在北美長期存活以吃掉大量的天牛。
- (C) 在北美沒有與吃天牛的蜂相似的黃蜂。
- (D) 在北美以外的大陸，這種黃蜂能比其他昆蟲控制方法更有效地控制天牛。
- (E) 北美大陸以外的穀物莊稼不會被任何天牛毀壞。

答案：(B)

201208 GRE 考試中正確答案被改編成：

There are no predators that prey on these wasps. (因此這些黃蜂能活下來)



三十二、能源消耗

標題	文體類型	文章內容與解析	考試日期
能源消耗量	weaken	美國 1970~1980 年間，國內化石能源消耗先增後減，但工業產出卻增加了。 結論：工業生產使用了更為節約能源的方法。 問題：哪個選項能 weaken 結論。 【答案】 大能耗企業減產 其他干擾選項：A. 人們找到了更便宜的替代能源。 B. 工業以外的能量消耗（貌似是民用）。 C. 1980 消耗的其實比 1970 高。	(201208)

Between 1970 and 1980, energy consumption by United States industry peaked and then declined, so that by 1980 total industrial use of energy was below the 1970 level even though total industrial output had grown substantially in the same period. Industry must have instituted highly effective energy conservation measures in those years to have achieved such impressive results.

Which of the following, if true, most seriously weakens the conclusion of the argument?

- (A) Many industries switched to the greatest extent possible from high-priced oil to lower-priced alternatives throughout the 1970's.
- (B) Total residential energy consumption was higher in the United States in 1980 than it had been in 1970
- (C) Many industrial users of energy had paid little attention to energy conservation prior to 1970.
- (D) Industrial output grew less rapidly from 1970 to 1980 than it had from 1960 to 1970.
- (E) The industries whose production dropped sharply during the 1970's included a disproportionately large number of energy-intensive industries.

Answer: (E)



Although recent years have seen substantial reductions in noxious pollutants from individual motor vehicles, the number of such vehicles has been steadily increasing. Consequently, more than 100 cities in the United States still have levels of carbon monoxide, particulate matter, and ozone (generated by photochemical reactions with hydrocarbons from vehicle exhaust) that exceed legally established limits.

Which of the following most closely parallels the situation described in the first sentence of the passage?

- A Although a town reduces its public services in order to avoid a tax increase, the town's tax rate exceeds that of other towns in the surrounding area.
- B Although a state passes strict laws to limit the type of toxic material that can be disposed of in public landfills, illegal dumping continues to increase.
- C Although a town's citizens reduce their individual use of water, the town's water supplies continue to dwindle because of a steady increase in the total population of the town.
- D Although a country attempts to increase the sale of domestic goods by adding a tax to the price of imported goods, the sale of imported goods within the country continues to increase.
- E Although a country reduces the speed limit on its national highways, the number of fatalities caused by automobile accidents continues to increase.

分析：

文中正確定位

題目的意思是「下面哪個選項與文章中的第一句話所描述的情況相似？」，很明顯，這到題屬於典型的類比題。首先，我們迅速地在文章定位，找到第一句話，即 **Although, recent years have seen substantial reductions in noxious pollutants from individual motor vehicles, the number of such vehicles has been steadily increasing consequently, more than 100 cities in the United States still have levels of carbon monoxide, particulate matter, and ozone (generated by photochemical reactions with hydrocarbons from vehicle exhaust) that exceed legally established limits**

分析所給信息

「美國單個汽車尾氣排放量雖然下降，但是汽車的總數還是在穩定地上升。因此，結果還是，美國的 100 多個城市仍然是污染排放總量在大幅度上升。」

邏輯關係：「個體量下降，但數量增加，所以總和還是增加的」。

尋找正確選項

C 選項的意思是「雖然小鎮居民減少了他們的個人用水量，但是人口增加了，所以，總供水量還是不足。」

