IELTS

雅思阅读真题及预测

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简　　介

管永川

无忧雅思网 www.51ielts.com 创始人，著名英语测试和教学专家，计算机及语言测试学硕士，澳洲 IDP 教育机构（雅思三大考试主办方之一）中国地区指定合作方，亚太地区雅思资讯网站排名连续 10 年第一。曾在美国、加拿大地区从事雅思、托福、SAT 等留学考试的中外交流合作，长期和雅思、托福领域顶级学校及著名教师进行合作交流、图书出版、机经编辑、预测解析等工作。到目前为止合作方包括英国使馆文化教育处、IDP、剑桥大学出版社、环球雅思学校、新航道、新东方、北外雅思等雅思官方机构和培训机构、为数百万雅思考生排忧解难，指引雅思考试的最新方向。 自 2003 年开始，每年连续推出《无忧雅思机经》《无忧托福机经》各种版本，销量及下载量累计超过 500 万册次以上。

曹书畅

毕业于北京外国语大学，随后赴澳洲取得 MBA 硕士学位，期间一并攻读教育语言学的经典著作和辅修测试学，不断探索语言学源流，深入钻研各种出国留学考试，参与雅思、托福等出国留学考试的内部测试测评。回国后在众家国内顶级学校任教，从事雅思、托福、SAT 等考试的研发和教学工作。从事教育工作长达十年之久，2011 年创造雅思阅读、听力 11 种考点串联，开拓阅读领域教学新篇章。2012 年任职北京外国语大学雅思学院，开办 8 小时雅思全日制 A+A 保分课程，学员保分成功率达到 98%，缔造业绩又一个奇迹。2013 年联合业界顶级雅思研发团队（无忧雅思网）一同推出《每周雅思预报》和《雅思机经超详细》系列资料，受到业界顶级名师的联合推荐，在广大烤鸭们中产生轰动效应。

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雅思阅读高分策略

雅思阅读考试中取得高分并不难。

首先，要深入透彻的理解雅思阅读考试的表面形式与实质特点。

然后，有针对性地培养雅思阅读能力和解题技巧，做到阅读实力的提升和十大题型解题技巧的完美结合。

下文分述之。

一、表面形式

● 3 个部分

A 类阅读：三个部分分别为三篇长文章，每篇长度在 900 – 1000 个单词左右，学术类科普读物。

G 类阅读：第一部分通常有两篇较短的文章，阅读的是提供某种产品或服务的基本信息的广告类文章；第二部分稍复杂，阅读短信息，内容多为有关学习课程、学校介绍的信息；第三部分最难，阅读一篇篇幅较长的学术类文章。

● 40 道题

A 类和 G 类阅读考试均为 40 道题。答案要求用铅笔填在答题卡上。

● 60 分钟

A 类和 G 类阅读考试时间均为 60 分钟，紧接在雅思听力考试之后。阅读考试无额外的时间誊写答案。所以考试时答案应直接写在答题卡上。

● 10 种题型

雅思考试官方按题型形式分为 10 种题型，但针对中国考生的学习习惯特点，培训机构一般在雅思教学培训中按解题思路的不同分为下面 10 种题型分别进行讲解。

● **9 分**

雅思阅读评分标准 (A 类和 G 类)

学术类阅读		移民类阅读	
正确题数	分数	正确题数	分数
10—12	4	15—17	4
13—15	4. 5	18—19	4. 5
16—19	5	20—22	5
20—22	5. 5	23—24	5. 5
23—25	6	25—27	6
26—27	6. 5	28—29	6. 5
28—30	7	30—32	7
31—32	7. 5	33—34	7. 5
33—35	8	35—37	8
36—38	8. 5	38—39	8. 5
39—40	9	40	9

二、实质特点

● **考试目的**

A 类：Study，考查考生通过学术话题文章的阅读掌握所需信息，理解并获取知识的能力。

G 类：Survival，考查考生在英语国家中生活所必备的阅读能力。

● **文章题材**

A 类文章内容主要由选自世界各大重要媒体（相关网站如：www.nature.com; www.nationalgeographic.com; www.economist.com ）的文章改写而成。内容涉及经济、教育、科技、医学、环境、能源、地质、海洋、动植物等方面问题。

G 类文章内容与日常生活息息相关。文章来自于布告、广告、官方文件、小册子、报纸、说明书、时间表、杂志，以及学校的各种规章制度等。

文章体裁

A 类：说明文和议论文，三篇文章中必然有一篇包含详细的议论。

G 类：说明文。

● 考试特点

雅思阅读部分由剑桥大学考试委员会和澳大利亚考试中心负责试题的编写，所以阅读试题以前多以英国和澳大利亚的生活背景为主，但现在的选材以更趋于国际化。

考试文章以大众题材为主，不涉及专业性很强的文章，以免给某些专业的考生造成优势或劣势。除选材多样化以外，尽量设计多层次、多范畴信息题型，从不同角度考查考生理解把握文章的能力。

雅思阅读考试没有专门设计语法和词汇的专项题型，这是有别于其他外语考试形式的一个重要特征。相反，在一些较难的文章之后还附带有一些提示的生词表或注解（Glossary），以帮助考生理解某些关键词语和定义，从而更好点理解全文。这是因为雅思阅读考试既不是考查考生是否能理解每一个单词、每一句话的确切含义，也不是考查在某一学科的专业能力，而旨在评估考生的综合英语阅读能力。

● 重点考查技能

雅思 A 类阅读最大特点是阅读量大。三篇文章，最常见的文章长度为 900 个单词左右一篇，大部分考生在学习雅思之前很少接触此类长文章。因此，如何在 10 分钟内快速的浏览完一篇文章，把握文章结构大意，留出更多的时间做题是提高雅思阅读成绩的关键。雅思阅读还强调考生 reading with purpose 的能力，在大量的信息中找到自己想要的信息。这对考生今后对付国外大学教授布置的如山的课后阅读材料是大有裨益的。而且，我们“有幸”生活在信息时代，每个人都不缺乏信息，相反都是 information overloaded。那么雅思阅读其实培养了我们一种基本的生存能力：如何在信息的海洋中找到自己想要的部分，而不是被信息所包围，最终遭遇灭顶之灾。

所以，A 类阅读考试的考核重点是：阅读文章时能正确理解文章，把握文章主旨和结构；做题时能回原文迅速找到考点具体信息，理解文中的主要事实和某些特定的细节，根据上下文猜出某些词句大意，弄清句子间的逻辑关系，能进行

一定的判断推理。

雅思 G 类考到的题目涉及考生在英语国家必备的生存技能，即是否具备获取、理解并处理基本信息的能力。就考核技能而言，雅思 G 类阅读主要涉及抓主旨、定位细节和比较信息，较少考核推理、判断与得出结论等学术技能。

三、雅思阅读实力提升

雅思阅读实力提升阅读实力的提升绝非一朝一夕之功。单词量和对英语语法的熟练程度是各类英语阅读考试高分的基石。雅思亦是如此。通常来说，达到大学英语六级水平的考生，其单词量（5500 左右）和语法程度达到雅思阅读的基本要求，再通过对雅思阅读特点和方法的掌握，可望在短期内达到 6 分以上的水平。

● 单词

根据自己的英语基础制定出每天能够坚持的、切实可行的背单词计划。结合阅读文章记忆单词是颇为有效的方法。如脱离语言环境，孤立地背词汇，就很容易把单词的意义和正确用法遗忘或混淆。而且枯燥的单词书、字母表很容易让人疲倦和产生挫败感。在精读雅思文章的同时背单词，除了单词的收获，还能深入理解文章中的各类人文常识、趣味科普知识，从而产生每天坚持阅读、坚持背单词的兴趣和动力。另外，有效背记单词的另一个重要原则是：一定要反复多遍。背过的单词一定要定期的重复复习。

● 语法

雅思的语法掌握侧重对句子的理解，应学会从句子的主干成分主谓结构入手，对并列句、比较句、指代句、复合句和双重否定句有充分的把握，注意人称、语态在句子中的变化，并结合句子上下文，正确地掌握其要表达的意思。要逐渐培养将一个长句子读成一个相对短的句子，即长句短读的能力。读完一个长句后自己能总结归纳，提炼其陈述的要点。

● 加大阅读广度

以往在和雅思阅读 8 分以上的高分学员的交流中发现：学员们的单词量大小可能有所差异，但共同点却很明显：英语的累积阅读量大。有的是考前通读过多

种雅思阅读材料；有的是过去读过 TOEFL、GRE 和 GMAT 的各类文章，有的是因为工作的需要每天上网快速阅读英文参考文献……所以，积累和扩大自己的英语阅读量是迈向高分的必由之路。G 类考试的阅读中前两部分通常是实用性强的功能性短文，如菜单、产品说明、通知、住宿安排和广告等，非常贴近西方的实际生活，但对国内绝大多数考生而言很陌生。建议争取每天阅读一定量的原版英文报刊、书籍，如 Time、Reader's Digest 等，尤其注意其中的各类广告。而 A 类阅读则注意多阅读篇幅较长的科普文章或学术性议论文，建议每天坚持半小时以上浏览 www.nature.com、www.nationalgeographic.com、www.economist.com 、www.newscientist.com 等网站。它们的文风、常用词汇和句子结构都和雅思 A 类阅读相似。

● 提高阅读速度

雅思考试的阅读部分，无论是 A 类还是 G 类都是同时测试考生的阅读速度和理解的精确度。而如何快速的阅读完长文章，留出充足的时间回答各类题型，是考生必然面临的一个难题。要想提高阅读速度首先要改掉影响阅读速度的不良习惯。针对大多数考生的通病，提出下面四点注意事项：

1. 扩大眼睛扫描的宽度。要达到雅思阅读的速度，请注意训练自己一眼看过，至少阅读到 3 – 5 个单词

2. 阅读过程中只使用眼睛和大脑两大器官。不要用手指和笔引导阅读，不要小声读出来（使用了嘴和耳朵），不要在心中默读（能默读说明你一眼只看到一个单词）。

3. 遇到生词不用紧张，学会通过上下文猜测大意。

4. 有重点的阅读，把握文章结构和大意。

● 培养重要考核能力

有了以上基础，还要有针对性的训练和提高雅思阅读所要求的各种阅读能力。按照各种阅读能力对获得雅思高分的重要性排序，它们依次为：

把握长文章结构（Understanding framework of a passage）快速浏览长文章（Skimming）扫描特定信息（Scanning）理解复杂句子结构（Understanding complex structures）通过上下文猜测词义（Understanding meaning from context）形成概念（Forming a mental image）

雅思阅读真题词汇同意替换整理版

序号	题目单词	原文替换单词	衍生同意单词
1	scientist	expert	physicist, specialist, biologist, zoologist, chemist, researcher, professor, master, skeptics, advocate
2	revision	change, rather than, instead of, shift	correct, transformation, contrast, adjustment, turn, but, however, nevertheless, contrary
3	policy	way, philosophy organisation	rule, law, principle, guideline, decision government, department
4	explanation	explain	claim, conclusion, tell, instruct, demonstrate, declare, argue, believe, maintain, insist, emphasize, say, “”
5	reduce	decrease, drop, fall, slow	minus, decline, descend, down, cut, small, ressession, shrink, leak, downward, small
6	use	consume	apply, employ, utilize, adopt, make use of
7	irrigation	agriculture	food supply, water, canal, lake, ocean, sea, river, field, farmland, farmer, meadow
8	disuse	No	without, not, lack, impossible, improper, inappropriate, unnecessary, abandon, desert, give up, refuse, resist
9	environmental	eco-system	environment, surrounding, atmosphere, circumstance, situation, condition
10	effect	consequence	influence, impact, reflect, result, affect, conclusion, end, hence, thus, therefore, accordingly, outcome, finally, last, fruit, yield
11	financial	Finance	cost, economy, economic, bill, fee, fare, freight, money, consumption, expenditure, spend, tax, tariff, expense, duty, custom, currency, fund, invest, donation, scholarship, penny, pound, dollar, rent, deposit, value, worth。。。。$
12	technology	technology	science, skill, machine, equipment, facility, infrastructure, tool, vehicle, technician, engineer

13	relevance	Relate	connect, link, contact, associate, relationship, intimate, get touch with
14	health	Disease	fitness, well-being, well, illness, cancer, cold, sanitation
15	concern	Worry	care, matter
16	increase	superior, extend	rise, up, ascend, more, accelerate, speed up, accumulate, peak, summit, grow, climb, upward, raise, high, soar, leap
17	surprising	unexpected, predict	unbelievable, incredible, terrific, amazing, forecast, anticipate, think, plan
18	need	Demand	call for, require, request, want, desire, eager, willing…
19	standard	Criteria	example, model, size, weight, specification, line, regulation, limit, restrict, criterion…
20	research	Study	investigation, researcher
21	dental	tooth, teeth	dentist
22	development	develop, advancement	promotion, improvement, high, progress, boost
23	population movement	migration	immigrant, shift, change
24	method	technique	approach, measure, way, technology, technical, strategy, skill, tool
25	early	prehistoric	long long ago, before, previous, former, 过去式, 1890s, 1980s, ancestor, precede, date back, precursor, primitive, original, aboriginal, archaeology
26	further	Next	then, advance, additional…
27	question	?	problem, issue, doubt, difficulty, suspicious, suspect
28	cause	Reason	lead to, result in/from, attribute, abscirbe, due to, owing to, because, contribute, why, thanks to, hence, thus, therefore, accordingly, consequence
29	relationship	Relate	relavant, relative, friendship, fellowship

30	different	but, however	unlike, conversely, yet, nevertheless, nonetheless
31	between	Two	2, as well as, and, on the one hand…on the other hand, either…or…, both…and…, the former…the latter, couple with
32	measure	calibrate	test, scale, calculate, figure out
33	domestic water	drinking water	shower, WC, toilet, wash, irrigate
34	purify	clean, removal	clear, tidy, anti-bacteria, sanitation, remove, get rid of
35	farming industry	Farm	agriculture, peasant, farmer, farmland, field, pest, animal, herd, cultivate, plant
36	stage	first, second, third, then	finally, next, level, rank, grade, class…
37	term	be referred to as	definition, technical word, vocabulary, be defined as, be known as, be called, be termed as, expression
38	hidden	not appear	disappear, invisible, vanish, hide, underlie, escape, secret, buried, concealed, obscure, cover
39	chemical	pesticide，fertilizer	dirty, science, pollution, chemistry, DDT, poison
40	city	urban	downtown, metropolitan
41	positive	phenomenal	encouraging, promote, energetic, excellent, extraordinary, attractive, great, gorgeous, prominent, supportive, favorable
42	military	battle, battlefield	soldier, navy, army, air force, force, war, arm, gun, marine,
43	electronically	computer	electricity, current, battery, laptop, mobile phone, television, telephone, e-mail, internet
44	difficulty	barrier	not deal with, not handle, not tackle, shortcoming, disadvantage, mistake, drawback, ban, problem
45	first	coin	start, primary, elementary, primitive, original, initial, begin, find, discover, create, invention, build, construct, compose

46	product	produce	vegetable, fruit, thing, article, item, object, physical, ware, goods…
47	abroad		oversea, foreign
48	local		native, our, domestic, own, themselves, civil
49	deliver	send	transport, traffic, sea, freight, airmail, EMS, post, import, export, convey
50	biological	gene, instinct	creature, biology, biologist, animal, tiger, snake, evolution
51	explanation	tell	explain, say, argue, claim, state, believe, maintain, insist, persist, doubt
52	experiment	lab	laboratory, subject, microscope, researcher
53	pupil	pupil	primary school, elementary school, education
54	identity	actor	identify, identification, student, son
55	statistical	数字	data, number, figure, census, demography, numeration
56	expect	predict, want	guess, think, estimate, anticipate, forecast, foresee
57	aim	goal	target, purpose
58	again	前缀 re-	back, second
59	common	general	public, people, person, society, social, share
60	topic	subject	theme, thesis, issue
61	conversation	talk	dialogue, speech, lecture, seminar
62	identify	identity	understand, know, acquaintance, recognize, realize, consider, opinion
63	improvement	advancement	great, promotion, propel, progress, positive, excellent, advantageous, remarkable, prominent, boost
64	official	government	officer, public servant, nation, country, worker, authority
65	location	boulevard	situation, place, sit, locate, situate, position, address, lane, road, street, avenue
66	actor	superstar	actress, player, personate, impersonate

67	pessimistic	worse	bad, negative, failure, fail, hopeless, harmful, inferior, tough
68	instantly	rapid	quickly, fast, speedy, immediately, promptly
69	well known	famous, notoriety	celebrated, noted, renowned, famed, illustrious
70	view	outlook	opinion, perspective, viewpoint, stand, sentiment, thought
71	bring	confer	supply, present, offer, give, apply
72	exchange	together	change, transform, communicate, associate, colleague, cooperation, collaborate
73	expertise	scientist	expert, master, researcher, engineer, physicist
74	different sports	a number of sports swimming, squash, golfer	a variety of sports, basketball, valleyball, football
75	visual imaging	camera, photo	see, view, picture, image, photograph, drawing, diagram
76	narrow	focus	specify, concentrate, shrink, decline, decrease
77	reproduce	copy, replicate	produce again, duplicate
78	optimum	best	greatest, first, leading
79	achievement	score	performance, accomplishment, skill, ability
80	event	championship	match, game, competition, olympic game, contest, sport activity, action
81	detailed	explicit	specific, elaborate, minute
82	potential	be liable to	may be, be able to, likely, possible, probable, be inclined to
83	difference	distinguish	distinction, different, differ, differentiate, unlike, contrast, contrary, adverse, discrimination, odds
84	the same as	like	equivalent, equal, parallel, similar, as, coincide…with, coincidence, resemble
85	entirely	totally	completely, utterly, undoubtedly, absolutely, whole

86	field	domain	kingdom, province, realm, scopes, sign, terrain
87	quickly	fast	swift, speedy, prompt, immediate, sudden
88	unpredictable	fluctuate	rebound, uncertain
89	big	massive	adequate, abundant, substantial, large quantity of, a great deal of, plenty of, accumulative, many, much, excessive
90	delieve	send	transmit, pass, hand over, submit, give
91	restrict	slow down	limit, confine, constrain, curb, minimal, few, smaller
92	pressing	urgent	clamant, emergent, exigent, hurry-up, imperative
93	such as	like	for example, for instance, as an illustration of, to illustrate, case
94	elderly people	old people	senior citizen, old folks, the elderly
95	sophisticated	developed	advanced, complicated, complex, intricate, perplexing, tangle some
96	fair	equal, equitable	disinterested, evenhanded, impartial, square, equality
97	target	goal	aim, cause, end, object, objective
98	vehicle	car, truck	automobile, motor vehicles, transportation means, bus, minibus, carriage, truck, van, traffic
99	unwanted material	waste	rubbish, trash, garbage, junk, litter, muck, sweeping
100	lifestyle	way	mode, method, manner, fashion

Animal minds: Parrot Alex

A In 1977 Irene Pepperberg, a recent graduate of Harvard University, did something very bold. At a time when animals still were considered automatons, she set out to find what was on another creature's mind by talking to it. She brought a one-year-old African gray parrot she named Alex into her lab to teach him to reproduce the sounds of the English language. "I thought if he learned to communicate, I could ask him questions about how he sees the world."

B When Pepperberg began her dialogue with Alex, who died last September at the age of 31, many scientists believed animals were incapable of any thought. They were simply machines, robots programmed to react to stimuli but lacking the ability to think or feel. Any pet owner would disagree. We see the love in our dogs' eyes and know that, of course, they has thoughts and emotions. But such claims remain highly controversial. Gut instinct is not science, and it is all too easy to project human thoughts and feelings onto another creature. How, then, does a scientist prove that an animal is capable of thinking-that it is able to acquire information about the world and act on it? "That's why I started my studies with Alex." Pepperberg said. They were seated- she at her desk, he on top of his cage-in her lab, a windowless room about the size of a boxcar. At Brandeis University, newspapers lined the floor; baskets of bright toys were stacked on the shelves. They were clearly a team-and because of their work, the notion that animals can think is no longer so fanciful.

C Certain skills are considered key signs of higher mental abilities: good memory, a grasp of grammar and symbols, self-awareness, understanding others' motives, imitating 0thers, and being creative. Bit by bit, in ingenious experiments, researchers have documented these talents in other species, gradually chipping away at what we thought made human beings distinctive while offering a glimpse of where our own abilities came from. Scrub jays are thieves and that stashed food can spoil; sheep can recognize faces; chimpanzees use a variety of tools to probe termite and even use weapons to

hunt small mammals; dolphins can imitate human postures; the archerfish, which stuns insects with a sudden blast of water, can learn how to aim its squirt simply by watching an experienced fish perform the task. And Alex the parrot turned out to be a surprisingly good talker.

D Thirty years after the Alex studies began; Pepperberg and a changing collection of assistants were still giving him English lessons. The humans, along with two younger parrots, also served as Alex's flock, providing the social input all parrots crave. Like any flock, this one - as small as it was - had its share of drama. Alex dominated his fellow parrots, acted huffy at times around Pepperberg, tolerated the other female humans, and fell to pieces over a male assistant who dropped by for a visit. Pepperberg bought Alex in a Chicago pet store where she let the store's assistant pick him out because she didn't want other scientists saying later that she'd particularly chosen an especially smart bird for her work. Given that Alex's brain was the size of a shelled walnut, most researchers thought Pepperberg's interspecies communication study would be futile.

E "Some people actually called me crazy for trying this," she said. "Scientists thought that chimpanzees were better subjects, although, of course, chimps can't speak." Chimpanzees, bonobos, and gorillas have been taught to use sign language and symbols to communicate with us, often with impressive results. The bonobo Kanzi, for instance, carries his symbol-communication board with him so he can "talk" to his human researchers, and he has invented combinations of symbols to express his thoughts. Nevertheless, this is not the same thing as having an animal look up at you, open his mouth, and speak. Under Pepperberg's patient tutelage, Alex learned how to use his vocal tract to imitate almost one hundred English words, including the sounds for various foods, although he calls an apple a "banerry". "Apples taste a little bit like bananas to him, and they look a little bit like cherries, so Alex made up that word for them," Pepperberg said.

F It sounded a bit mad, the idea of a bird having lessons to practice, and willingly

doing it. But after listening to and observing Alex, it was difficult to argue with Pepperberg's explanation for his behaviors. She wasn't handing him treats for the repetitious work or rapping him on the claws to make him say the sounds. "He has to hear the words over and over before he can correctly imitate them," Pepperberg said, after pronouncing "seven" for Alex a good dozen times in a row. "I'm not trying to see if Alex can learn a human language," she added. "That's never been the point. My plan always was to use his imitative skills to get a better understanding of avian cognition."

G In other words, because Alex was able to produce a close approximation of the sounds of some English words, Pepperberg could ask him questions about a bird's basic understanding of the world. She couldn't ask him what he was thinking about, but she could ask him about his knowledge or numbers, shapes, and colours. To demonstrate, Pepperberg carried Alex on her arm to a tall wooden perch in the middle of the room. She then retrieved a green key and a small green cup from a basket on a shelf. She held up the two items to Alex's eye. "What's same?" she asked. Without hesitation, Alex's beak opened: "Co-lor." "What's different?" Pepperberg asked. "Shape," Alex said. His voice had the digitized sound of a cartoon character. Since parrots lack lips (another reason it was difficult for Alex to pronounce some sounds, such as ba), the words seemed to come from the air around him, as if a ventriloquist were speaking. But the words-and what can only be called the thoughts - were entirely his.

H For the next 20 minutes, Alex ran through his tests, distinguishing colors, shapes, sizes, and materials (wool versus wood versus metal). He did some simple arithmetic, such as counting the yellow toy blocks among a pile of mixed hues. And, then, as if to offer final proof of the mind inside his bird's brain, Alex spoke up. "Talk clearly!" he commanded, when one of the younger birds Pepperberg was also teaching talked with wrong pronunciation. "Talk clearly!" "Don't be a smart aleck," Pepperberg said, shaking her head at him. "He knows all this, and he gets bored, so he interrupts the others, or he gives the wrong answer just to be obstinate. At this stage, he's like a teenager; he's moody, and I'm never sure what he'll do.

Questions 1-6

Do the following statements agree with the information given in Reading Passage 1?

In boxes 1-6 0n your answer sheet, write

TRUE	*if the sataement agrees with the information*
FALSE	*if the statement contradicts the information*
NOT GIVEN	*if there is no information on this*

1 Firstly, Alex has grasped quite a lot of vocabulary.

2 At the beginning of study, Alex felt frightened in the presence of human.

3 Previously, many scientists realized that animals possess the ability of thinking.

4 It has taken a long time before people get to know cognition existing in animals.

5 As Alex could approximately imitate the sounds of English words, he was capable of roughly answering Irene's questions regarding the world.

6 By breaking in other parrots as well as producing the incorrect answers, he tried to be focused.

Questions 7-10

Complete the following summary of the paragraphs of Reading Passage, using no more than three words from the Reading Passage for each answer. Write your answers in boxes 7-10 0n your answer sheet.

After the training of Irene, Parrot Alex can use his vocal tract to pronounce more than 7 _____ , while other scientists believe that animals have no this advanced ability of thinking, they would rather teach 8 _____ . Pepperbere clarified that she wanted to conduct a study concerning 9 _____ but not to teach him to talk. The store's assistant picked out a bird at random for her for the sake of avoiding other scientists saying that the bird is 10 _____ afterwards.

Question 11-13

Choose ***NO MORE THAN THREE WORDS AND/OR A NUMBER*** from the passage for each answer.

11 What did Alex reply regarding the similarity of the subjects showed to him?

12 What is the problem of the young parrots except Alex?

13 To some entent, through the way he behaved what we can call him?

Biomimetic Design

What has fins like a whale, skin like a lizard, and eyes like a moth? The future of engineering. Andrew Parker, an evolutionary biologist, knelt in the baking red sand of the Australian out back just south of Alice Springs and eased the right hind leg of a thorny devil into a dish of water.

A "Its back is completely drenched!" Sure enough, after 30 seconds, water from the dish had wicked up the lizard's leg and was glistening all over its prickly hide. In a few seconds more the water reached its mouth, and the lizard began to smack its jaws with evident satisfaction. It was, in essence, drinking through its foot. Given more time, the thorny devil can perform this same conjuring trick on a patch of damp sand—a vital competitive advantage in the desert. Parker had come here to discover precisely how it does this, not from purely biological interest, but with a concrete purpose in mind: to make a thorny-devil-inspired device that will help people collect lifesaving water in the desert. "The water's spreading out incredibly fast!" he said, as drops from his eyedropper fell onto the lizard's back and vanished, like magic. "Its skin is far more hydrophobic than I thought. There may well be hidden capillaries, channeling the water into the mouth."

B Parker's work is only a small part of an increasingly vigorous, global biomimetics movement. Engineers in Bath, England, and West Chester, Pennsylvania, are pondering the bumps on the leading edges of humpback whale flukes to learn how to make airplane wings for more agile flight. In Berlin, Germany, the fingerlike primary feathers of raptors are inspiring engineers to develop wings that change shape aloft to reduce drag and increase fuel efficiency. Architects in Zimbabwe are studying how termites regulate temperature, humidity, and airflow in their mounds in order to build more comfortable buildings, while Japanese medical researchers are reducing the pain of an injection by using hypodermic needles edged with tiny serrations, like those on a mosquito's proboscis, minimizing nerve stimulation.

C Ronald Fearing, a professor of electrical engineering at the University of California, Berkeley, has taken on one of the biggest challenges of all: to create a miniature robotic fly that is swift, small, and maneuverable enough for use in surveillance or search-and-rescue operations. Fearing made his own, one of which he held up with tweezers for me to see, a gossamer wand some 11 millimeters long and not much thicker than a cat's whisker. Fearing has been forced to manufacture many of the other minute components of his fly in the same way, using a micromachining laser and a rapid prototyping system that allows him to design his minuscule parts in a computer, automatically cut and cure them overnight, and assemble them by hand the next day under a microscope.

D With the microlaser he cuts the fly's wings out of a two-micron polyester sheet so delicate that it crumples if you breathe on it and must be reinforced with carbon-fiber spars. The wings on his current model flap at 275 times per second~faster than the insect's own wings—and make the blowfly's signature buzz. "Carbon fiber outperforms fly chitin," he said, with a trace of self-satisfaction. He pointed out a protective plastic box on the lab bench, which contained the fly-bot itself, a delicate, origami-like framework of black carbon-fiber struts and hairlike wires that, not surprisingly, looks nothing like a real fly. A month later it achieved liftoff in a controlled flight on a boom. Fearing expects the fly-bot to hover in two or three years, and eventually to bank and dive with flylike virtuosity.

E Stanford University roboticist Mark Cutkosky designed a gecko-inspired climber that he christened Stickybot. In reality, gecko feet aren't sticky—they're dry and smooth to the touch—and owe their remarkable adhesion

to some two billion spatula-tipped filaments per square centimeter on their toe pads, each filament only a hundred nanometers thick. These filaments are so small, in fact, that they interact at the molecular level with the surface on which the gecko walks, tapping into the low-level van der Waals forces generated by molecules' fleeting positive and negative charges, which pull any two adjacent objects together. To make the toe pads for Stickybot, Cutkosky and doctoral student Sangbae Kim, the robot's lead designer, produced a urethane fabric with tiny bristles that end in 30-micrometer points. Though not as flexible or adherent as the gecko itself, they hold the 500-gram robot on a vertical surface.

F Cutkosky endowed his robot with seven-segmented toes that drag and release just like the lizard's, and a gecko-like stride that snugs it to the wall. He also crafted Stickybot's legs and feet with a process he calls shape deposition manufacturing (SDM), which combines a range of metals, polymers, and fabrics to create the same smooth gradation from stiff to flexible that is present in the lizard's limbs and absent in most man-made materials. SDM also allows him to embed actuators, sensors, and other specialized structures that make Stickybot climb better. Then he noticed in a paper on gecko anatomy that the lizard had branching tendons to distribute its weight evenly across the entire surface of its toes. Eureka. "When I saw that, I thought, Wow, that's great!" He subsequently embedded a branching polyester cloth "tendon" in his robot's limbs to distribute its load in the same way.

G Stickybot now walks up vertical surfaces of glass, plastic, and glazed ceramic tile, though it will be some time before it can keep up with a gecko. For the moment it can walk only on smooth surfaces, at a mere four centimeters per second, a fraction of the speed of its biological role model. The dry adhesive on Stickybot's toes isn't self-cleaning like the lizard's either, so it rapidly clogs with dirt. "There are a lot of things about the gecko that we simply had to ignore," Cutkosky says. Still, a number of real-world applications are in the

offing. The Department of Defense's Defense Advanced Research Projects Agency (DARPA), which funds the project, has it in mind for surveillance: an automaton that could slink up a building and perch there for hours or days, monitoring the terrain below. Cutkosky hypothesizes a range of civilian uses. "I'm trying to get robots to go places where they've never gone before," he told me. "I would like to see Stickybot have a real-world function, whether it's a toy or another application. Sure, it would be great if it eventually has a lifesaving or humanitarian role..."

H For all the power of the biomimetics paradigm, and the brilliant people who practice it, bio-inspiration has led to surprisingly few mass-produced products and arguably only one household word—Velcro, which was invented in 1948 by Swiss chemist George de Mestral, by copying the way cockleburs clung to his dog's coat. In addition to Cutkosky's lab, five other high-powered research teams are currently trying to mimic gecko adhesion, and so far none has come close to matching the lizard's strong, directional, self-cleaning grip. Likewise, scientists have yet to meaningfully re-create the abalone nanostructure that accounts for the strength of its shell, and several well-funded biotech companies have gone bankrupt trying to make artificial spider silk.

Questions 1-7

Do the following statements agree with the information given in Reading Passage 1?

In boxes 1-7 on your answer sheet, write

TRUE	*if the sataement agrees with the information*
FALSE	*if the statement contradicts the information*
NOT GIVEN	*if there is no information on this*

1 Andrew Parker failed to make effective water device which can be used in desert.

2 Skin of lizard is easy to get wet when it contacts water.

3 Scientists apply inspiration from nature into many artificial engineering.

4 Tiny and thin hair under gecko's feet allows it to stick to the surface of object.

5 When gecko climbs downward, its feet release a certain kind of chemical to make them adhesive.

6 Famous cases stimulate a large number of successful products of biomimetics in real life.

7 Velcro is well-known for its bionics design .

Questions 8-10

Filling the blanks below.

write ***NO MORE THAN THREE WORDS AND/OR A NUMBER*** from the passage for each question of robot below

Ronald Fearing made tiny components of robotic fly in_____8_____by specialized Techniques.

The robotic fly's main structure outside is made of_____9_____ and long and thin wires which make it unlike fly at all.

Cutkosky applied an artificial material in stickybot's_____10_____ as a tendon to split pressure like lizard's does.

Questions 11-13

Fill the blanks below.

Write ***NO MORE THAN THREE WORDS AND/OR A NUMBER*** from the passage for each answer about facts of stickybot.

11 Stickybot's feet doesn't have_____function which makes it only be able to walk on smooth surface.

12 DARPA are planning to use stickybot for_____.

13 Cutkosky assume that stickybot finally has potential in_____or other human-related activities.

Communicating in Colour

A There are more than 160 known species of chameleons. The main distribution is in Africa and Madagascar, and other tropical regions, although some species are also found in parts of southern Europe and Asia. There are introduced populations in Hawaii and probably in California and Florida too.

B New species are still discovered quite frequently. Dr Andrew Marshall, a conservationist from York University, was surveying monkeys in Tanzania, when he stumbled across a twig snake in the Magombera forest which, frightened, coughed up a chameleon and fled. Though a colleague persuaded him not to touch it because of the risk from venom, Marshall suspected it might be a new species, and took a photograph to send to colleagues, who confirmed his suspicions. Kinyongia magomherae, literally "the chameleon from Magombera", is the result, and the fact it was not easy to identify is precisely what made it unique. The most remarkable feature of chameleons is their ability to change colour, an ability rivalled only by cuttlefish and octopi in the animal kingdom. Because of this, colour is not the best thing for telling chameleons apart and different species are usually identified based on the patterning and shape of the head, and the arrangement of scales. In this case it was the bulge of scales on the chameleon's nose.

C Chameleons are able to use colour for both communication and camouflage by switching from bright, showy colours to the exact colour of a twig within seconds. They show an extraordinary range of colours, from nearly black to bright blues, oranges, pinks and greens, even several at once. A popular misconception is that chameleons can match whatever background they are placed on, whether a chequered red and yellow shirt or a Smartie box. But each species has a characteristic set of cells containing pigment distributed over their bodies in a specific pattern, which determines the range of colours and patterns they can show. To the great

disappointment of many children, placing a chameleon on a Smartie box generally results in a stressed, confused, dark grey or mottled chameleon.

D Chameleons are visual animals with excellent eyesight, and they communicate with colour. When two male dwarf chameleons encounter each other, each shows its brightest colours. They puff out their throats and present themselves side-on with their bodies flattened to appear as large as possible and to show off their colours. This enables them to assess each other from a distance. If one is clearly superior, the other quickly changes to submissive colouration, which is usually a dull combination of greys or browns.

E If the opponents are closely matched and both maintain their bright colours, the contest can escalate to physical fighting and jaw-locking, each trying to push each other along the branch in a contest of strength. Eventually, the loser will signal his defeat with submissive colouration. Females also have aggressive displays used to repel male attempts at courtship. When courting a female, males display the same bright colours that they use during contests. Most of the time, females are unreceptive and aggressively reject males by displaying a contrasting light and dark colour pattern, with their mouths open and moving their bodies rapidly from side to side. If the male continues to court a female, she often chases and bites him until he retreats. The range of colour change during female displays, although impressive, is not as great as that shown by males.

F Many people assume that colour change evolved to enable chameleons to match a greater variety of backgrounds in their environment. If this was the case, then the ability of chameleons to change colour should be associated with the range of background colours in the chameleons habitat, but there is no

evidence for such a pattern. For example, forest habitats might have a greater range of brown and green background colours than grasslands, so forest-dwelling species might be expected to have greater powers of colour change. Instead, the males whose display colours are the most eye-catching show the greatest colour change. Their displays are composed of colours that contrast highly with each other as well as with the I background vegetation. This suggests that the species that evolved the most impressive capacities for colour change did so to enable them to intimidate rivals or attract mates rather than to facilitate camouflage.

G How do we know that chameleon display colours are eye-catching to another chameleon-or, for that matter, to a predatory bird? Getting a view from the perspective of chameleons or their bird predators requires information on the chameleons or birds visual system and an understanding of how their brains might process visual information. This is because the perceived colour of an object depends as much on the brain's wiring as on the physical properties of the object itself. Luckily, recent scientific advances have made it possible to obtain such measurements in the field, and information on visual systems of a variety of animals is becoming increasingly available.

Questions 1-2

Choose the correct letter, A, B, C or D.

Write your answers in boxes 1-2 on your answer sheet.

1 which situation can be inferred from the passage that a chameleons will display the most eye-catching colour

A when a chameleon hides in a bush after beating by another competitor

B when a male dwarf rejected by a female chameleon

C when a rival shows his contrast colour to the background

D when a chameleon moving into a forest habitat from grassland

2 which one purpose is NOT mentioned as the case that a chameleons will change its colour

A when a defeated chameleon changes into a submissive coloration

B when a lurking chameleon want to hide its coloration in background avoid being attacked by a bird

C when a female chameleon want to discourage having sex with a male

D the chameleons in competition with an exaggerated size

Questions 3-5

Answer the questions below.

Choose NO MORE THAN THREE WORDS from the passage for each answer.

Write your answers in boxes 3-5 on your answer sheet

3 What kind of climate do most chameleons live in?

4 What was the new species named after?

5 Which part of the body is unique to the species Kinyongia magomberae?

Questions 6-13

Do the following statements agree with the information given in Reading Passage 1?

In boxes 6-13 on your answer sheet, write

TRUE	*if the sataement agrees with the information*
FALSE	*if the statement contradicts the information*
NOT GIVEN	*if there is no information on this*

6 Few creatures can change colour as effectively as cuttlefish.

7 Chameleons can imitate a pattern provided there are more than two colours.

8 Chameleons appear to enjoy trying out new colours.

9 Size matters more than colour when male chameleons compete.

10 After a fight, the defeated male hides among branches of a tree.

11 The popular explanation of why chameleons change colour has been proved wrong

12 There are more predators of chameleons in grassland habitats than in others.

13 Measuring animals' visual systems necessitates removing them from their habitat.

Copy your neighbour

A THERE'S no animal that symbolises rainforest diversity quite as spectacularly as the tropical butterfly. Anyone lucky enough to see these creatures flitting between patches of sunlight cannot fail to be impressed by the variety of their patterns. But why do they display such colourful exuberance? Until recently, this was almost as pertinent a question as it had been when the 19th-century naturalists, armed only with butterfly nets and insatiable curiosity, battled through the rainforests. These early explorers soon realised that although some of the butterflies' bright colours are there to attract a mate, others are warning signals. They send out a message to any predators: "Keep off, we're poisonous." And because wearing certain patterns affords protection, other species copy them. Biologists use the term "mimicry rings" for these clusters of impostors and their evolutionary idol.

B But here's the conundrum. "Classical mimicry theory says that only a single ring should be found in any one area," explains George Beccaloni of the Natural History Museum, London. The idea is that in each locality there should be just the one pattern that best protects its wearers. Predators would quickly learn to avoid it and eventually all mimetic species in a region should converge upon it. "The fact that this is patently not the case has been one of the major problems in mimicry research," says Beccaloni. In pursuit of a solution to the mystery of mimetic exuberance, Beccaloni set off for one of the megacentres for butterfly diversity, the point where the western edge of the Amazon basin meets the foothills of the Andes in Ecuador. "It's exceptionally rich, but comparatively well collected, so I pretty much knew what was there, says Beccaloni." The trick was to work out how all the butterflies were organised and how this related to mimicry."

C Working at the Jatun Sacha Biological Research Station on the banks of the Rio Napo, Beccaloni focused his attention on a group of butterflies called ithomiines. These distant relatives of Britain's Camberwell Beauty are abundant throughout Central and South America and the Caribbean.

They are famous for their bright colours, toxic bodies and complex mimetic relationships. "They can comprise up to 85 per cent of the individuals in a mimicry ring and their patterns are mimicked not just by butterflies, but by other insects as diverse as damselflies and true bugs," says Philip DeVries of the Milwaukee Public Museum's Center for Biodiversity Studies.

D Even though all ithomiines are poisonous, it is in their interests to evolve to look like one another because predators that learn to avoid one species will also avoid others that resemble it. This is known as Miillerian mimicry. Mimicry rings may also contain insects that are not toxic, but gain protection by looking likes a model species that is: an adaptation called Batesian mimicry. So strong is an experienced predator's avoidance response that even quite inept resemblance gives some protection. "Often there will be a whole series of species that mimic, with varying degrees of verisimilitude, a focal or model species," says John Turner from the University of Leeds. "The results of these deceptions are some of the most exquisite examples of evolution known to science." In addition to colour, many mimics copy behaviours and even the flight pattern of their model species.

E But why are there so many different mimicry rings? One idea is that species flying at the same height in the forest canopy evolve to look like one another. "It had been suggested since the 1970s that mimicry complexes were stratified by flight height," says DeVries. The idea is that wing colour patterns are camouflaged against the different patterns of light and shadow at each level in the canopy, providing a first line of defence against predators." But the light patterns and wing patterns don't match very well," he says. And observations show that the insects do not shift in height as the day progresses and the light patterns change. Worse still, according to DeVries, this theory doesn't explain why the model species is flying at that particular height in the first place.

F "When I first went out to Ecuador, I didn't believe the flight height hypothesis and set out to test it," says Beccaloni."A few weeks with the collecting net convinced me otherwise. They really flew that way." What he didn't accept, however, was the explanation about light patterns. "I thought, if this idea really

is true, and I can work out why, it could help explain why there are so many different warning patterns in any one place. Then we might finally understand how they could evolve in such a complex way." The job was complicated by the sheer diversity of species involved at Jatun Sacha. Not only were there 56 ithomiine butterfly species divided among eight mimicry rings, there were also 69 other insect species, including 34 day-flying moths and a damselfly, all in a 200-hectare study area. Like many entomologists before him, Beccaloni used a large bag-like net to capture his prey. This allowed him to sample the 2.5 metres immediately above the forest floor. Unlike many previous workers, he kept very precise notes on exactly where he caught his specimens.

G The attention to detail paid off. Beccaloni found that the mimicry rings were flying at two quite separate altitudes. "Their use of the forest was quite distinctive," he recalls. "For example, most members of the clear-winged mimicry ring would fly close to the forest floor, while the majority of the 12 species in the tiger-winged ring fly high up." Each mimicry ring had its own characteristic flight height.

H However, this being practice rather than theory, things were a bit fuzzy. "They'd spend the majority of their time flying at a certain height. But they'd also spend a smaller proportion of their time flying at other heights," Beccaloni admits. Species weren't stacked rigidly like passenger jets waiting to land, but they did appear to have a preferred airspace in the forest. So far, so good, but he still hadn't explained what causes the various groups of ithomiines and their chromatic consorts to fly in formations at these particular heights.

I Then Beccaloni had a bright idea. "I started looking at the distribution of ithomiine larval food plants within the canopy," he says. "For each one I'd record the height to which the host plant grew and the height above the ground at which the eggs or larvae were found. Once I got them back to the field station's lab, it was just a matter of keeping them alive until they pupated and then hatched into adults which I could identify."

Questions 1-5

The reading Passage has seven paragraphs A-I.

Which paragraph contains the following information?

Write the correct letter A-I, in boxes 1-5 on your answer sheet.

NB You may use any letter more than once.

1 Criticism against flight height theory of butterfly

2 Explained why Beccaloni carried out research in Ecuador,

3 Different mimicry ring flies at different height

4 The method of catching butterfly by Beccaloni

5 Not all Mimicry patterns are toxic information sent out from insects.

Questions 6-11

Do the following statements agree with the information given in Reading Passage 1?

In boxes 6-11 on your answer sheet, write

TRUE	*if the sataement agrees with the information*
FALSE	*if the statement contradicts the information*
NOT GIVEN	*if there is no information on this*

6 All butterflies' colours of wings reflect the sense of warning to other predators.

7 Insects may imitate butterflies' wing pattern as well.

8 Flying Altitude of butterfly is determined by their food.

9 Beccaloni agreed with flight height hypothesis and decided to reassure its validity.

10 Jatun Sacha has the richest diversity of breeds in the world.

11 Beccaloni has more detailed records on the location of butterfly collection than others.

Questions 12-13

Choose the correct letter, A, B, C or D

Write your answers in boxes 12-13 on your answer sheet.

12 Which is correct about butterflies flight altitude ?

A Flight height theory already established

B Butterfly always flies at a certain height

C It is like the airplane's flying phenomenon

D Each butterfly has its own favorable height

13 Which is correct about Beccaloni next investigation after flight height?

A Some certain statistics have already been collected

B Try to find connections between larval height and adult ones

C It's very difficult to raise butterfly larval

D Different larval favors different kinds of trees

Extinct: the Giant Deer

Toothed cats, mastodons, giant sloths, woolly rhinos, and many other big, shaggy mammals are widely thought to have died out around the end of the last ice age, some 10,500 years ago.

A More recently, however, evidence has emerged that at least two of the spectacular megafauna of the Pleistocene era (1.6 million to 10,000 years ago) clung on until recent times. In the 1990s mammoth remains found on an island north of Arctic Siberia revealed the animals still roamed a tiny corner of the planet just 3,600 years ago. Tantalizingly, this was almost a thousand years after the first pyramids were built in ancient Egypt. Now a new study suggests that another striking mammal, the Irish elk, likewise lived way beyond the last ice age.

B The Irish elk is also known as the giant deer (Megaloceros giganteus). Analysis of ancient bones and teeth by scientists based in Britain and Russia show the huge herbivore survived until about 5,000 B.C. —more than three millennia later than previously believed. The research team says this suggests additional factors, besides climate change, probably hastened the giant deer's eventual extinction. The factors could include hunting or habitat destruction by humans.

C The Irish elk, so-called because its well-preserved remains are often found in lake sediments under peat bogs in Ireland, first appeared about 400,000 years ago in Europe and central Asia. It stood 7 feet (2.1 meters) at the shoulder. Adult males had massive antlers that spanned 12 feet (3.7 meters) and weighed up to 88 pounds (40 kilos) .Through a combination of radiocarbon dating of skeletal remains and the mapping of locations where the remains were unearthed, the team shows the Irish elk was widespread across Europe before the last "big freeze." The deer's range later contracted to the Ural Mountains, in modern-day Russia, which separate Europe from Asia.

D The giant deer made its last stand in western Siberia, some 3,000 years after the ice sheets receded, said the study's co-author, Adrian Lister, professor of

palaeobiology at University College London, England. "The eastern foothills of the Urals became very densely forested about 8,000 years ago, which could have pushed them on to the plain," he said. He added that pollen analysis indicates the region then became very dry in response to further climactic change, leading to the loss of important food plants. "In combination with human pressures, this could have finally snuffed them out," Lister said.

E Hunting by humans has often been put forward as a contributory cause of extinctions of the Pleistocene mega fauna. The team, though, said their new date for the Irish elk's extinction hints at an additional human-made problem—habitat destruction. Lister said, "We haven't got just hunting 7,000 years ago—this was also about the time the first Neolithic people settled in the region. They were farmers who would have cleared the land." The presence of humans may help explain why the Irish elk was unable to tough out the latest of many climatic fluctuations—periods it had survived in the past.

F Meanwhile, Lister cast doubt on another possible explanation for the deer's demise—the male's huge antlers. Some scientists have suggested this exaggerated feature—the result of females preferring stags with the largest antlers, possibly because they advertised a male's fitness—contributed to the mammal's downfall. They say such antlers would have been a serious inconvenience in the dense forests that spread northward after the last ice age. But, Lister said, "That's a hard argument to make, because the deer previously survived perfectly well through wooded interglacials [warmer periods between ice ages]." Some research has suggested that a lack of sufficient high-quality forage caused the extinction of the elk. High amounts of calcium and phosphate compounds are required to form antlers, and therefore large quantities of these minerals are required for the massive structures of the Irish Elk. The males (and male deer in general) met this requirement partly from their bones, replenishing them from food plants after the antlers were grown or reclaiming the nutrients from discarded antlers (as has been observed in

extant deer). Thus, in the antler growth phase, Giant Deer were suffering from a condition similar to osteoporosis. When the climate changed at the end of the last glacial period, the vegetation in the animal's habitat also changed towards species that presumably could not deliver sufficient amounts of the required minerals, at least in the western part of its range.

G He added, however, that the animal may have also suffered from increased competition from other species such as moose, which spread rapidly once the climate warmed. U.S. scientists from the University of Minnesota say the new study makes it clear that the reasons why so many Ice Age mammals went extinct are far more complex than previously realized. Biologists John Pastor and Ron Moen state: "The [Irish elk] finding lends weight to the idea that there is no one explanation for the so-called Pleistocene extinctions.

H Alongside climate fluctuations and vegetation changes, they say, human activity, competing species, and other ecological pressures need to be taken into account for each animal. Lister said, "Whereas people have been looking for single blanket explanation to account for all these species going extinct, we're saying you've got a range of species with different ecologies and adaptations." So while the Irish elk preferred relatively temperate conditions and semi-woodland habitats, the woolly mammoth was adapted to cold temperatures and open tundra. "Past climate changes would have impacted on those two species differently," Lister added. And if the mammoth and Irish elk both survived, what of the other shaggy megafauna that supposedly perished during the last ice age? The woolly rhinos and cave bears of Europe and Asia, the saber-toothed cats, the mastodons and giant sloths of North and South America — could some of these have made it through too? "It's entirely possible," Lister said. "I think there are all sorts of surprises around the corner."

Questions 28-32

Summary

Complete the following summary of the paragraphs of Reading Passage, using no more than three words from the Reading Passage for each answer. Write your answers in boxes 28-32 on your answer sheet.

Having been preserved well in Europe and central Asia, the remains of the Irish elk was initially found approximately 28 _____ . Around 29 _____ , they were driven to live in the plain after being restricted to the Ural Mountains. Hunting was considered as one of the important factors of Irish elk's extinction, people have not started hunting until 30 _____ when Irish elk used to get through under a variety of climatic fluctuations. The huge antlers may possibly contribute to the reason why Irish elk extinct, which was highly controversial as they live pleasantly over the span of 31 _____ Generally, it is well-known that, at the last maximum ice age, mammals become extinct about 32 _____ .

Questions 33-35

Answer the questions below.

Choose ***NO MORE THAN THREE WORDS AND/OR A NUMBER*** from the passage for each answer.

33 What kind of physical characteristics eventually contributed to the extinction of Irish elk?

34 What kind of nutrient substance needed in maintaining the huge size of Irish elk?

35 What geographical evidence suggested the advent of human resulted in the extinction of Irish elk?

Fossil files "The Paleobiology Database"

A Are we now living through the sixth extinction as our own activities destroy ecosystems and wipe out diversity? That's the doomsday scenario painted by many ecologists, and they may well be right. The trouble is we don't know for sure because we don't have a clear picture of how life changes between extinction events or what has happened in previous episodes. We don't even know how many species are alive today, let alone the rate at which they are becoming extinct. A new project aims to fill some of the gaps. The Paleobiology Database aspires to be an online repository of information about every fossil ever dug up. It is a huge undertaking that has been described as biodiversity's equivalent of the Human Genome Project. Its organizers hope that by recording the history of biodiversity they will gain an insight into how environmental changes have shaped life on Earth in the past and how they might do so in the future. The database may even indicate whether life can rebound no matter what we throw at it, or whether a human induced extinction could be without parallel, changing the rules that have applied throughout the rest of the planet's history.

B But already the project is attracting harsh criticism. Some experts believe it to be seriously flawed. They point out that a database is only as good as the data fed into it, and that even if all the current fossil finds were catalogued, they would provide an incomplete inventory of life because we are far from discovering every fossilised species. They say that researchers should get up from their computers and get back into the dirt to dig up new fossils. Others are more sceptical still, arguing that we can never get the full picture because the fossil record is riddled with holes and biases.

C Fans of the Paleobiology Database acknowledge that the fossil record will always be incomplete. But they see value in looking for global patterns that show relative changes in biodiversity. "The fossil record is the best tool we have for

understanding how diversity and extinction work in normal times," says John Alroy from the National Center for Ecological Analysis and Synthesis in Santa Barbara. "Having a background extinction estimate gives us a benchmark for understanding the mass extinction that's currently under way. It allows us to say just how bad it is in relative terms."

D To this end, the Paleobiology Database aims to be the most thorough attempt yet to come up with good global diversity curves. Every day between 10 and 15 scientists around the world add information about fossil finds to the database. Since it got up and running in 1998, scientists have entered almost 340,000 specimens, ranging from plants to whales to insects to dinosaurs to sea urchins. Overall totals are updated hourly at www.paleodb.org. Anyone can download data from the public part of the site and play with the numbers to their heart's content. Already, the database has thrown up some surprising results. Looking at the big picture, Alroy and his colleagues believe they have found evidence that biodiversity reached a plateau long ago, contrary to the received wisdom that species numbers have increased continuously between extinction events. "The traditional view is that diversity has gone up and up and up," he says. "Our research is showing that diversity limits were approached many tens of millions of years before the dinosaurs evolved, much less suffered extinction." This suggests that only a certain number of species can live on Earth at a time, filling a prescribed number of niches like spaces in a multi-storey car park. Once it's full, no more new species can squeeze in, until extinctions free up new spaces or something rare and catastrophic adds a new floor to the car park.

E Alroy has also used the database to reassess the accuracy of species names. His findings suggest that irregularities in classification inflate the overall number of species in the fossil record by between 32 and 44 per cent. Single species often end up with several names, he says, due to misidentification or poor communication between taxonomists in different countries. Repetition like this can distort diversity curves. "If you have really bad taxonomy in one short interval, it will look like a diversity spike~a big diversification followed

by a big extinction—when all that has happened is a change in the quality of names," says Alroy. For example, his statistical analysis indicates that of the 4861 North American fossil mammal species catalogued in the database, between 24 and 31 per cent will eventually prove to be duplicates.

F Of course, the fossil record is undeniably patchy (*adj*. 不协调的). Some laces and times have left behind more fossil-filled rocks than others. Some have been sampled more thoroughly. And certain kinds of creatures—those with hard parts that lived in oceans, for example—are more likely to leave a record behind, while others, like jellyfish, will always remain a mystery. Alroy has also tried to account for this. He estimates, for example, that only 41 per cent of North American mammals that have ever lived are known from fossils, and he suspects that similar proportion of fossils are missing from other groups, such as fungi and insects .

G Not everyone is impressed with such mathematical wizardry (*n*. 魔 法). onathan Adrain from the University of Iowa in Iowa City points out that statistical wrangling (争吵) has been known to create mass extinctions where none occurred. It is easy to misinterpret data. For example, changes in sea level or inconsistent sampling methods can mimic major changes in biodiversity. Indeed, a recent and thorough examination of the literature on marine bivalve fossils has convinced David Jablonsky from the University of Chicago and his colleagues that their diversity has increased steadily over the past 5 million years .

H Adrain believes that fancy analytical techniques are no substitute for hard evidence, but he has also seen how inadequate historical collections can be. When he started his ongoing study of North American fossils from the Early Ordovician, about 500 million years ago, the literature described one genus and

four species of trilobites, lust by going back to the fossil beds and sampling more thoroughly, Adrain found 11 genera and 39 species. “Looking inward has maybe taken us as far as it’s going to take us,” he says. “There’s an awful lot more out there than is in the historical record.” The only way to really get at the history of biodiversity, say Adrain and an increasingly vocal group of scientists, is to get back out in the field and collect new data.

I With an inventory of all living species, ecologists could start to put the current biodiversity crisis in historical perspective. Although creating such a list would be a task to rival even the Palaeobiology Database, it is exactly what the San Francisco-based ALL Species Foundation hopes to achieve in the next 25 years. The effort is essential, says Harvard biologist Edward O. Wilson, who is alarmed by current rates of extinction. “There is a crisis. We’ve begun to measure it, and it’s very high,” Wilson says. “We need this kind of information in much more detail to protect all of biodiversity, not just the ones we know well.” Let the counting continue.

Questions 14-19

The reading passage has seven paragraphs, A-F

Choose the correct heading for paragraphs A-F from the list below.

Write the correct number,i-xi, in boxes 14-19 on your answer sheet.

List of Headings

i. Potential error exists in the database
ii. Supporter of database recleared its value
iii. The purpose of this paleobiology data
iv. Reason why some certain species were not included in it
v. Duplication of breed but with different names
vi. Achievement of Paleobiology Database
vii. Criticism on the project which is waste of fund

14 Paragraph A

15 Paragraph B

16 Paragraph C

17 Paragraph D

18 Paragraph E

19 Paragraph F

Questions 20-22

Use the information in the passage to match the people (listed A-C) with opinions ordeeds below. Write the appropriate letters A-C in boxes 20-22 on your answer sheet.

A	Jonathan Adrain
B	John Alroy
C	David Jablonsky
D	Edward O. Wilson

20 Creating the Database would help scientist to identify connections of all species.

21 Believed in contribution of detailed statistics should cover beyond the known species.

22 reached a contradictory finding to the tremendous species die-out.

Questions 23-24

Choose the TWO correct letter following

Write your answers in boxes 23-24 on your answer sheet.

Please choose ***TWO CORRECT*** descriptions about the ***The Paleobiology Database*** in this passage:

A almost all the experts welcome this project

B intrigues both positive and negative opinions from various experts

C all different creature in the database have unique name

D aims to embrace all fossil information globally

E get more information from record rather than the field

Questions 25-26

Choose the correct letter, A, B,C or D.

Write your answers in boxes 25-26 on your answer sheet.

25 According to the passage, jellyfish belongs to which category of The Paleobiology Database?

A repetition breed

B untraceable species

C specifically detailed species

D currently living creature

26 What is the author's suggestion according to the end of passage?

A continue to complete counting the number of species in the aleobiology Database

B stop contributing The Paleobiology Database

C try to create a database of living creature

D study more in the field rather than in the book

Giants Fall in Americas

A Before humans arrived, The Americas were home to woolly mammoths, saber-toothed cats, giant ground sloths and other behemoths, an array of megafauna (巨型动物) more impressive than even Africa boasts today. Researchers have advanced several theories to explain what did them in and when the event occurred.

B One prominent theory pegs humans as the cause of the demise, often pointing to the Clovis people, who left the earliest clear signs of humans entering the New World roughly 13,500 years ago. The timing coincides with the disappearance of megafauna, suggesting the Clovis hunted the animals to extinction or infected them with deadly disease. Another hypothesis supposes that climate was the culprit: it had swung from cold to warm twice, including a 1,300-year-long chill known as the Younger Dryas; such abrupt shifts might have overwhelmed the creatures, abilities to adapt.

C To pin down when the megafauna vanished, paleoecologist Jacquelyn Gill of the University of Wisconsin-Madison and her colleagues analyzed fossil dung, pollen and charcoal from ancient lake sediments in Indiana. The dung of large herbivores harbors a fungus known as Sporomiella, and its amounts in the dung gives an estimate of how many mammoths and other megafauna were alive at different points in history. Pollen indicates vegetation levels, and charcoal signals how many fires burned; the extent of flora and wildfires is related to the presence of herbivores. Without mega herbivores to keep them in check, broad-leaved tree species such as black ash, elm and ironwood claimed the landscape; soon after, buildups of woody debris sparked a dramatic increase in wildfires. Putting these data together, Gill and her team conclude that the giant animals disappeared 14,800 to 13,700 years ago-up to 1,300 years before Clovis.

D A different study, however, suggests that this mass extinction happened during Clovis. Zooarchaeologist J. Tyler Faith of George Washington University and archaeologist Todd Surovell of the University of Wyoming carbon-dated

prehistoric North American mammal bones from 31 different genera (groups of species). They found that all of them seemed to meet their end simultaneously between 13,800 t0 11,400 years ago.

E But if ancient DNA recovered from permafrost is any sign, megafauna survived in the New World millennia after humanity arrived. As the permafrost in central Alaska cracked during springtime thaws, water that held DNA from life in the region leaked in, only to freeze again during the winter. As such, these genes can serve as markers of "ghost ranges"-remnant populations not preserved as fossil bones. Looking at mitochondrial DNA, evolutionary biologist Eske Willerslev of the University of Copenhagen and his colleague suggest mammoths lasted until at least 10,500 years ago (as did horses, which actually originated in the Americas only to vanish there until the Europeans reintroduced them).

F Although the three papers appear to conflict with one another, they could be snapshots from the beginning, middle and end of a mass extinction. "If they seem to disagree, it is for the same reason as in chat fable about the three blind men trying to describe an elephant-or mammoth?-by touching different parts of it, " says ecologist Christopher Johnson of James Cook University in Australia, who did not take part in any of the studies.

G Johnson suggests the fungus research is superb evidence for when the decline began, but it is not as good at confirming exactly when the extinction was completed, especially over larger areas, populations might have persisted. The DNA finds, on the other hand, can detect late survivors, he says, "maybe

very close to the actual time that the last individuals were alive, at least in Alaska." The bones analyzed from the period roughly in between show that the extinction process afflicted many species simultaneously. Those fossils came from the contiguous US, which back then was separated from Alaska by the massive Laurentide and Cordilleran ice sheets and so, Faith notes, could explain why the pattern of extinction differed up there.

H So what caused the decline? The jury's still out, says Willerslev's collaborator Ross MacPhee of the American Museum of Natural History in New York City. Johnson notes that archaeologists are turning up evidence of humans in the New World before Clovis, and he suggests they overhunted the megafauna. The beautifully crafted fluted spear points linked with the Clovis might reflect strategies chat developed once the giants became rare and harder to hunt, Johnson adds.

I Even if scientists cannot definitively finger the killer, research into the megafauna disappearance "is directly relevant today because we are in the middle of a mass extinction and one for which we know the cause", Gill says. "Large animals are among the most threatened today," she points out, and no one wants Africa to follow the ancient experience of the Americas.

Questions 1-3

Choose the correct letter, A, B, C or D.

Write your answers in boxes l-3 on your answer sheet.

1 Mammoths are animals that_____

A still exist recently in the Americas

B sometimes consumed fleshes, for example horses

C faced extinction at least 10,000 years ago.

D nobody has found their DNAs yet

2 Clovis people is a group of people who_____

A are regarded as the earliest existence of humans.

B may be the main cause of extinction of mammoths.

C lived in somewhere in Africa.

D appeared before the human of the New World.

3 Christopher Johnson suggested that_____

A Clovis people overhunted mammoths in his study.

B mammoths lived in the Americas.

C megafauna faced extinction before the New World by DNA testing.

D researchers in the passage may not be contradictory to each other.

Questions 4-10

Use the information in the passage to match the people (listed A-D) with opinions or deeds below. Write the appropriate letters A-D in boxes 4-10 on your answer sheet.

NB you may use any letter more than once.

A Jacquelyn Gill
B J. Tyler Faith
C Eske Willerslev
D Christopher Johnson
E Ross MacPhee

4 Human came before Clovis might overhunted mammoths already.

5 Clovis was excluded from the cause of mammoths' extinction.

6 Fossils of fungi could not prove when exactly the extinction was finished.

7 Genes could be used to show when the extinction happened.

8 Big animal eating plants in the area pose a competition to large pieces of forest, with big leaves trees.

9 Extinction estimation could be done by tracking the carbon particles inside the dead bodies of mammoths.

10 Humans are playing a role of major culprit of giant loss globally.

Questions 10-13

Answer the questions below.

Choose NO MORE THAN THREE WORDS AND/OR A NUMBER from the passage for each answer.

10 Where did giant ground sloth once live?

11 Which fossils could be regarded as evidence of vegetable consumed in a fire?

13 What kind of tools did the Clovis develop to hunt vanishing mammoths?

Health in the Wild

Many animals seem able to treat their illnesses themselves. Humans way have a thing or two to learn from them.

A For the past decade Dr Engel, a lecturer m environmental sciences at Britain's Open University, has been collating examples of self-medicating behavior in wild animals. She recently published a book on the subject. In a talk at the Edinburgh Science Festival earlier this month, she explained that the idea that animals can treat themselves has been regarded with some skepticism by her colleagues in the past. But a growing number of animal behaviourists now think that wild animals can and do deal with their own medical needs.

B One example of self-medication was discovered in 1987. Michael Huffman and Mohamedi Seifu, working in the Mahale Mountains National Park in Tanzania, noticed that local chimpanzees suffering from intestinal worms would dose themselves with the pith of a plant called Veronia. This plant produces poisonous chemicals called terpenes. Its pith contains a strong enough concentration to kill gut parasites, but not so strong as to kill chimps (nor people, for that matter; locals use the pith for the same purpose). Given that the plant is known locally as "goat-killer", however, it seems that not all animals are as smart as chimps and humans. Some consume it indiscriminately, and succumb.

C Since the Veronia-eating chimps were discovered, more evidence has emerged suggesting that animals often eat things for medical rather than nutritional reasons. Many species, for example, consume dirt-a behaviour known as geophagy（食土癖）. Historically, the preferred explanation was that soil supplies minerals such as salt. But geophagy occurs in areas where the earth is not a useful source of minerals, and also in places where minerals can be more easily obtained from certain plants that are known to be rich in them. Clearly, the animals must be getting something else out of eating earth.

D The current belief is that soil-and particularly the clay in it-helps to detoxify

the defensive poisons that some plants produce in an attempt to prevent themselves from being eaten. Evidence for the detoxifying nature of clay came in 1999, from an experiment carried out on macaws by James Gilardi and his colleagues at the University of California, Davis. Macaws eat seeds containing alkaloids, a group of chemicals that has some notoriously toxic members, such as strychnine. In the wild, the birds are frequently seen perched on eroding riverbanks eating clay. Dr Gilardi fed one group of macaws a mixture of a harmless alkaloid and clay, and a second group just the alkaloid. Several hours later, the macaws that had eaten the clay had 60% less alkaloid in their bloodstreams than those that had not, suggesting that the hypothesis is correct.

E Other observations also support the idea that clay is detoxifying. Towards the tropics the amount of toxic compounds in plants increases-and so does the amount of earth eaten by herbivores. Elephants lick clay from mud holes all year round, except in September when they are bingeing on fruit which, because it has evolved to be eaten, is not toxic. And the addition of clay to the diets of domestic cattle increases the amount of nutrients that they can absorb from their food by 10-20%.

F A third instance of animal self-medication is the use of mechanical scours to get rid of gut parasites. In 1972 Richard Wrangham, a researcher at the Gombe Stream Reserve in Tanzania, noticed that chimpanzees were eating the leaves of a tree called Aspilia. The chimps chose the leaves carefully by testing them in their mouths. Having chosen a leaf, a chimp would fold it into a fan and swallow it. Some of the chimps were noticed wrinkling their noses as they swallowed these leaves, suggesting the experience was unpleasant. Later, undigested leaves were found on the forest floor.

G Dr Wrangham rightly guessed that the leaves had a medicinal purpose-this was, indeed, one of the earliest

interpretations of a behaviour pattern as self-medication. However, he guessed wrong about what the mechanism was. His (and everybody else's) assumption was that Aspilia contained a drug, and this sparked more than two decades of phytochemical research to try to find out what chemical the chimps were after. But by the 1990s, chimps across Africa had been seen swallowing the leaves of 19 different species that seemed to have few suitable chemicals in common. The drug hypothesis was looking more and more dubious.

H It was Dr Huffman who got to the bottom of the problem. He did so by watching what came out of the chimps, rather than concentrating on what went in. He found that the egested leaves were full of intestinal worms. The factor common to all 19 species of leaves swallowed by the chimps was that they were covered with microscopic hooks. These caught the worms and dragged them from their lodgings.

I Following that observation, Dr Engel is now particularly excited about how knowledge of the way that animals look after themselves could be used to improve the health of livestock. People might also be able to learn a thing or two-and may, indeed, already have done so. Geophagy, for example, is a common behaviour in many parts of the world. The medical stalls in African markets frequently sell tablets made of different sorts of clays, appropriate to different medical conditions.

J Africans brought to the Americas as slaves continued this tradition, which gave their owners one more excuse to affect to despise them. Yet, as Dr Engel points out, Rwandan mountain gorillas eat a type of clay rather similar to kaolinite-the main ingredient of many patent medicines sold over the counter in the West for digestive complaints. Dirt can sometimes be good for you, and to be "as sick as a parrot" may, after all, be a state to be desired.

Question 1-4

Do the following statements agree with the information given in Reading Passage 1?
In boxes 1-4 0nyour answer sheet, write

TRUE	*if the sataement agrees with the information*
FALSE	*if the statement contradicts the information*
NOT GIVEN	*if there is no information on this*

1 It is for 10 years that Dr Engel has been working on animal self-medication.

2 In order to find plants for medication, animals usually need to walk a long distance.

3 Birds such as Macaw, are seen eating clay because it is a part of their natural diet.

4 According to Dr Engel., it is exciting that research into animal self-medication can be helpful in the invention of new painkillers.

Question 5-9

Complete the notes below using ***NO MORE THANONE WORD*** from the passage. *Write your answers in boxes 5-9 0nyour answer sheet.*

Date	Name	Animal	Food	Mechanism
1987	Michael Huffman and Mohamedi Seifu	Chimpanzee	5 _____ of Veronia	Contained chemicals named 6 _____ which can kill parasites
1999	James Gilardi and his colleagues	Macaw	Seeds (contain 7 _____) and clay	Clay can 8 _____ the poisonous contents in food
1972	Richard Wrangham	Chimpanzee	Leaves with tiny 9 _____ . On surface	Such leaves can catch and expel worms from intestines

Questions 10-13

Complete the summary below using words from the box.

Write your answers, A-H, in boxes 10-13 0n your answer sheet.

A mineral	B plants	C unpleasant	D toxic
E clay tablets	F nutritional	G geophagy	H harmless

Animal self-medication has been supported by an increasing amount of evidences. One of them is called 10 _____ , a soil-consuming behavior commonly found across animals species. Because earth, especially clay, can neutralize the 11 _____ content of their diet. Similar behavior can also be found among humans in Africa, where patients will buy 12 _____ at medical stalls to heal them. Another one is related to chimps who eat leaves with 13 _____ taste probably, but with medicinal value due to their special structure.

Mammoth Kill

Mammoth is any species of the extinct genus Mammuthus, proboscideans commonly equipped with long, curved tusks and in northern species, a covering of long hair. They lived from the Ptiocene epoch from around 5 million years ago, into the Hotocene at about 4,500 years ago, and were members of the family Elephantidae, which contains, along with mammoths, the two genera of modern elephants and their ancestors.

A Like their modern relatives, mammoths were quite large. The largest known species reached heights in the region of 4m at the shoulder and weights up t0 8 tonnes, while exceptionally large males may have exceeded 12 tonnes. However, most species of mammoth were only about as large as a modern Asian elephant. Both sexes bore tusks. A first, small set appeared at about the age of six months and these were replaced at about 18 months by the permanent set. Growth of the permanent set was at a rate of about l t0 6 inches per year. Based on studies of their close relatives, the modem elephants, mammoths probably had a gestation period of 22 months, resulting in a single calf being born. Their social structure was probably the same as that of African and Asian elephants, with females living in herds headed by a matriarch, whilst hulls lived solitary lives or formed loose groups after sexual maturity.

B MEXICO CITY-Although it's hard to imagine in this age of urban sprawl and automobiles, North America once belonged to mammoths, camels, ground sloths as large as cows, bear-size beavers and other formidable beasts. Some 11,000 years ago, however, these large bodied mammals and others-about 70 species in all-disappeared. Their demise coincided roughly with the arrival of humans in the New World and dramatic climatic change-factors that have inspired several theories about the die-off. Yet despite decades of scientific investigation, the exact cause remains a mystery. Now new findings offer support to one of these controversial hypotheses: that human hunting drove this megafaunal menagerie (巨型动物兽群) to extinction. The overkill model emerged in the 1960s, when it was put forth by Paul S. Martin of the

University of Arizona. Since then, critics have charged that no evidence exists to support the idea that the first Americans hunted to the extent necessary to cause these extinctions. But at the annual meeting of the Society of Vertebrate Paleontology in Mexico City last October, paleoecologist John Alroy of the University of California at Santa Barbara argued that, in fact, hunting-driven extinction is not only plausible, it was unavoidable. He has determined, using a computer simulation that even a very modest amount of hunting would have wiped these animals out.

C Assuming an initial human population of 100 people that grew no more than 2 percent annually, Alroy determined that if each band of, say, 50 people killed 15 to 20 large mammals a year, humans could have eliminated the animal populations within 1,000 years. Large mammals in particular would have been vulnerable to the pressure because they have longer gestation periods than smaller mammals and their young require extended care.

D Not everyone agrees with Alroy's assessment. For one, the results depend in part on population-size estimates for the extinct animals-figures that are not necessarily reliable. But a more specific criticism comes from mammalogist Ross D. E. MacPhee of the American Museum of Natural History in New York City, who points out that the relevant archaeological record contains barely a dozen examples of stone points embedded in mammoth bones (and none, it should be noted, are known from other megafaunal remains)-hardly what one might expect if hunting drove these animals to extinction. Furthermore, some of these species had huge ranges-the giant Jefferson's ground sloth, for example, lived as far north as the Yukon and as far south as Mexico-which would have made slaughtering them in numbers sufficient to cause their extinction rather implausible, he says.

E MacPhee agrees that humans most likely brought about these extinctions (as well as others around the world that coincided with human arrival), but not directly. Rather

he suggests that people may have introduced hyperlethal disease, perhaps through their dogs or hitchhiking vermin, which then spread wildly among the immunologically naive species of the New World. As in the overkill model, populations of large mammals would have a harder time recovering. Repeated outbreaks of a hyperdisease could thus quickly drive them to the point of no return. So far MacPhee does not have empirical evidence for the hyperdisease hypothesis, and it won't be easy to come by: hyperlethal disease would kill far too quickly to leave its signature on the bones themselves. But he hopes that analyses of tissue and DNA from the last mammoths to perish will eventually reveal murderous microbes.

F The third explanation for what brought on this North American extinction does not involve human beings. Instead, its proponents blame the loss on the weather. The Pleistocene epoch witnessed considerable climatic instability, explains paleontologist Russell W. Graham of the Denver Museum of Nature and Science. As a result, certain habitats disappeared, and species that had once formed communities split apart. For some animals, this change brought opportunity. For much of the megafauna, however, the increasingly homogeneous environment left them with shrinking geographical ranges-a death sentence for large animals, which need large ranges. Although these creatures managed to maintain viable populations through most of the Pleistocene, the final major fluctuation-the so-called Younger Dryas event-pushed them over the edge, Graham says. For his part, Alroy is convinced that human hunters demolished the titans of the Ice Age. The overkill model explains everything the disease and climate scenarios explain, he asserts, and makes accurate predictions about which species would eventually go extinct. "Personally, I'm a vegetarian," he remarks, "and I find all of this kind of gross-but believable."

Questions 14-20

Summary

Complete the following summary of the paragraphs of Reading Passage, using no more than three words from the Reading Passage for each answer. Write your answers in boxes 14-20 on your answer sheet.

The reason why big size mammals extincted 11,000 years ago is under hot debate. First explanation is that 14 _____ of human made it happen. This so called 15 _____ began from 1960s suggested by an expert, who however received criticism of lack of further information. Another assumption is that deadly 16 _____ from human causes their demises. MacPhee, who supported this idea, suggested that he required 17 _____ to testify its validity. Graham proposed a third hypothesis that 18 _____ in Pleistocene epoch drove some species disappear, reduced 19 _____ posed a dangerous signal to these giants, and 20 _____ finally wiped them out.

Questions 21-26

Use the information in the passage to match the people (listed A-C) with opinions or deeds below. Write the appropriate letters A-C in boxes 21-26 0n your answer sheet.

NB you may use any letter more than once

A John Alroy
B Ross D. E. MacPhee
C Russell W. Graham

21 Human hunting well explained which species would finally disappear.

22 Further grounded proof needed to explain human's indirect impact on mammals.

23 Over hunting situation has caused the die-out of large mammals.

24 Illness rather than hunting caused extensive extinction.

25 Doubt raised through the study of several fossil records.

26 Climate shift is the main reason of extinction.

Numeracy :can animals tell numbers ?

A Prime among basic numerical faculties is the ability to distinguish between a larger and a smaller number, says psychologist Elizabeth Brannon. Humans can do this with ease-providing the ratio is big enough-but do other animals share this ability? In one experiment, rhesus monkeys and university students examined two sets of geometrical objects that appeared briefly on a computer monitor. They had to decide which set contained more objects. Both groups performed successfully but, importantly, Brannon7 s team found that monkeys, like humans, make more errors when two sets of objects are close in number. The students' performance ends up looking just like a monkey's. It's practically identical, 'she says.

B Humans and monkeys are mammals, in the animal family known as primates. These are not the only animals whose numerical capacities rely on ratio, however. The same seems to apply to some amphibians. Psychologist Claudia Uller's team tempted salamanders with two sets of fruit flies held in clear tubes. In a series of trials, the researchers noted which tube the salamanders scampered towards, reasoning that if they had a capacity to recognise number, they would head for the larger number. The salamanders successfully discriminated between tubes containing 8 and 16 flies respectively, but not between 3 and 4， 4 and 6, or 8 and 12. So it seems that for the salamanders to discriminate between two numbers, the larger must be at least twice as big as the smaller. However, they could differentiate between 2 and 3 flies just as well as between 1 and 2 flies, suggesting they recognise small numbers in a different way from larger numbers.

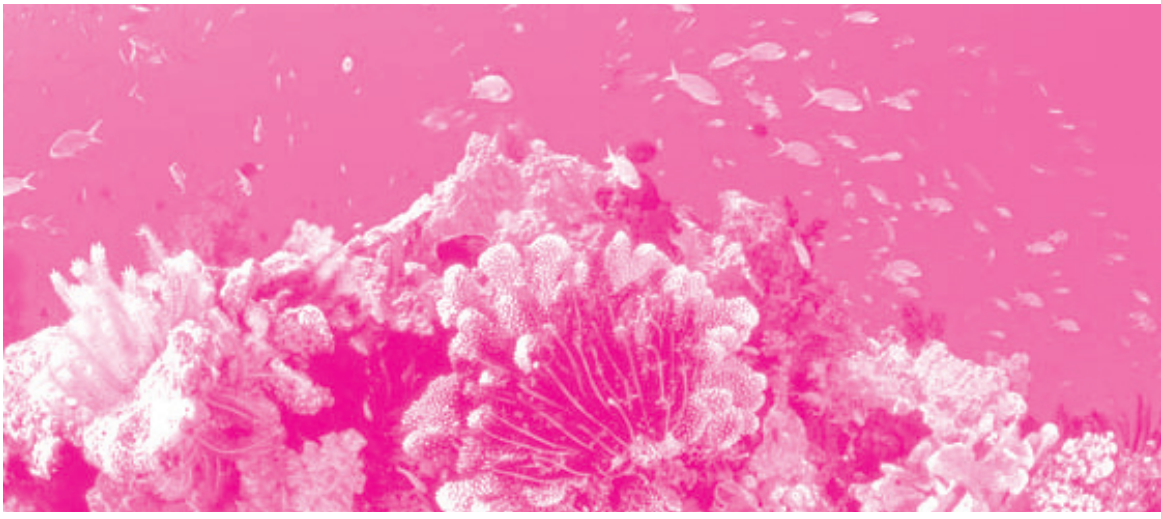
C Further support for this theory comes from studies of mosquitofish, which instinctively join the biggest shoal (鱼群) they can. A team at theUniversity of Padova found that while mosquitofish can tell the difference between a group containing 3 shoal-mates and a group containing 4, they did not show a preference between groups of 4 and 5. The team also found that mosquitofish

can discriminate between numbers up to 16, but only if the ratio between the fish in each shoal was greater than 2:1. This indicates that the fish, like salamanders, possess both the approximate and precise number systems found in more intelligent animals such as infant humans and other primates.

D While these findings are highly suggestive, some critics argue that the animals might be relying on other factors to complete the tasks, without considering the number itself. 'Any study that's claiming an animal is capable of representing number should also be controlling for other factors, says Brannon. Experiments have confirmed that primates can indeed perform numerical feats without extra clues, but what about the more primitive animals?

E To consider this possibility, the mosquitofish tests were repeated, this time using varying geometrical shapes in place of fish. The team arranged these shapes so that they had the same overall surface area and luminance even though they contained a different number of objects. Across hundreds of trials on 14 different fish, the team found they consistently discriminated 2 objects from 3. The team is now testing whether mosquitofish can also distinguish 3 geometric objects from 4.

F Even more primitive organisms may share this ability. Entomologist Jurgen Tautz sent a group of bees down a corridor, at the end of which lay two chambers—one which contained sugar water, which they like, while the other



was empty. To test the bees' numeracy, the team marked each chamber with a different number of geometrical shapes - between 2 and 6. The bees quickly learned to match the number of shapes with the correct chamber. Like the salamanders and fish, there was a limit to the bees' mathematical prowess - they could differentiate up to 4 shapes, but failed with 5 or 6 shapes.

G These studies still do not show whether animals learn to count through training, or whether they are born with the skills already intact. If the latter is true, it would suggest there was a strong evolutionary advantage to a mathematical mind. Proof that this may be the case has emerged from an experiment testing the mathematical ability of three-and four-day-old chicks. Like mosquitofish, chicks prefer to be around as many of their siblings as possible, so they will always head towards a larger number of their kin. If chicks spend their first few days surrounded by certain objects, they become attached to these objects as if they were family. Researchers placed each chick in the middle of a platform and showed it two groups of balls of paper. Next, they hid the two piles behind screens, changed the quantities and revealed them to the chick. This forced the chick to perform simple computations to decide which side now contained the biggest number of its "brothers" . Without any prior coaching, the chicks scuttled to the larger quantity at a rate well above chance. They were doing some very simple arithmetic, claim the researchers.

H Why these skills evolved is not hard to imagine, since it would help almost any animal forage for food. Animals on the prowl for sustenance must constantly decide which tree has the most fruit, or which patch of flowers will contain the most nectar. There are also other, less obvious, advantages of numeracy. In one compelling example, researchers in America found that female coots (黑鸭子) appear to calculate how many eggs they have laid-and add any in the nest laid by an intruder - before making any decisions about adding to them. Exactly how ancient these skills are is difficult to determine, however. Only by studying the numerical abilities of more and more creatures using standardised procedures can we hope to understand the basic preconditions for the evolution of number.

Questions 15-21

Answer the table below.

Choose ***NO MORE THAN THREE WORDS AND/OR A NUMBER*** from the passage for each answer. Write your answers in boxes 15-21 on your answer sheet

Animal numeracy		
Subjects	Experiments	Results
Mammals and birds		
rhesus monkeys and humans	looked at two sets of geometrical objects on computer screen	performance of two groups is almost 15 _____
chicks	chose between two sets of 16 _____ which are altered	chicks can do calculations in order to choose larger group
coots	behaviour of female birds was observed	bird seems to have ability to17 _____
Salamanders	offered clear tubes containing different quantities of 18 _____	salamanders distinguish between numbers over four if bigger number is at least two times larger
19 _____	shown real shoals and later artificial ones of geometrical shapes; these are used to check influence of total 20 _____ and brightness	subjects know difference between two and three and possibly three and four, but not between four and five
bees	had to learn where 21 _____ was stored	could soon choose correct place

Questions 22-27

Do the following statements agree with the information given in Reading Passage 2?

In boxes 22-27 on your answer sheet, write

TRUE	*if the sataement agrees with the information*
FALSE	*if the statement contradicts the information*
NOT GIVEN	*if there is no information on this*

22 Primates are better at identifying the larger of two numbers if one is much bigger than the other.

23 Jurgen Tautz trained the insects in his experiment to recognise the shapes of individual numbers.

24 The research involving young chicks took place over two separate days.

25 The experiment with chicks suggests that some numerical ability exists in newborn animals.

26 Researchers have experimented by altering quantities of nectar or fruit available to certain wild animals.

27 When assessing the number of eggs in their nest, coots take into account those of other birds.

Right Whales

A They dive 600 feet, brushing their heads along the seafloor with raised, wartlike patches of skin, sometimes swimming upside down, big as sunken galleons, hot-blooded and holding their breath in cold and utter darkness while the greatest tides on Earth surge by. Then they open their cavernous maws to let the currents sweep food straight in. This is one way North Atlantic right whales feed in the Bay of Fundy between Maine, New Brunswick, and Nova Scotia. Or so the experts suspect, having watched the 40-to 80-ton animals surface with mud on their crowns. Mind you, they say, that could result from another activity——one nobody can imagine yet.

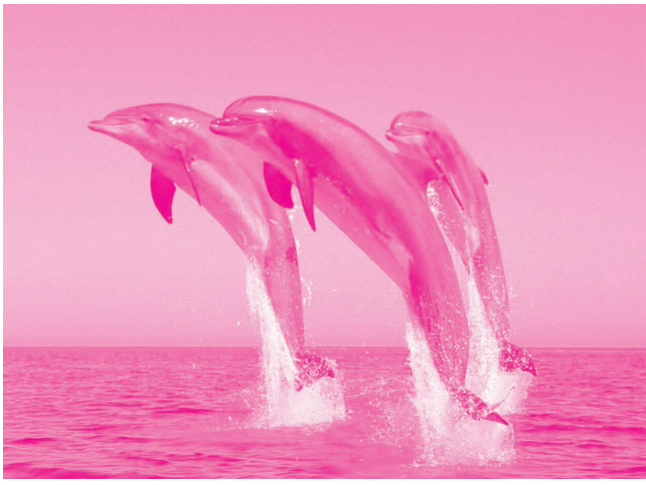
B Science calls these animals Eubalaena glacialis, "good, or true, whale of the ice." Heavy irony is embedded in the common name, right whale, given by whalers who declared them the right whales to kill. Favoring shallow coastal waters, they passed close to ports, swam slowly, and often lingered on the surface. Such traits made them easy to harpoon, and they tended to conveniently float after they died, thanks to their exceptionally thick blubber layer, which whalers rendered into oil. The first of the great whales to be hunted commercially, E. glacialis lit the lamps of the Old World from the Dark Ages through the Renaissance. By the 16th century Europeans had exhausted the eastern North Atlantic population and turned to North America's coast. There whalers set up stations in Labrador and took 25,000 to 40,000 related bowhead whales along with an unknown number of rights (records seldom distinguished between these two similar looking titans).

C By the time New Englanders got into the right-whale-killing business, they were chasing leftovers. The Yankees hunted down another 5,000 or so, partly because whales became even more prized for their baleen than for oil. Hundreds of strips of this tough yet flexible material, each six to nine feet long and finely fringed, drape from the upper jaw. They form a colossal sieve that allows the giants to strain tiny crustaceans from the water for food—a billion flea-size copepods a day to supply the minimum 400,000 calories an adult

whale needs (the ratio of a whale's body mass to its prey's is 50 billion to one). Society, however, thought baleen was best used for corset stays, stiffeners in fashionable gowns, umbrella ribs, and (consider: "I'm going to whale on you!") horsewhips.

D As the 20th century began, the number of whales left in this species was possibly in the low dozens. About 350 to 400 North Atlantic right whales exist today. The survivors migrate along North America's East Coast between feeding grounds in the Gulf of Maine and wintering sites farther south--roughly 1,400 miles one way for pregnant females that journey to traditional calving areas off Georgia and Florida. They travel through an intensely urban stretch of ocean.

E A research team from Boston's New England Aquarium spends the summer stationed in Lubec, Maine, studying the whales that gather to feed and socialize in the Bay of Fundy and nearby Roseway Basin, off Nova Scotia's southern tip. The scientists, who have built an archive of around 390,000 photographs,



can recognize nearly every whale in the population by its unique callosity pattern (those wartlike patches on their heads), along with scars and other irregularities, and, increasingly, DNA samples. One of their favorites is #2223, first seen in these waters in 1992. It was a baby, and so fond of cavorting around boats that they named it Calvin after the mischief-loving cartoon kid. That same year a fisherman reported a calf circling its dying mother, and when the team recovered the carcass of the female, they identified her as #1223—Delilah, Calvin's mom. The eight-month-old calf's prospects looked grim, for it should have been nursing Delilah's rich, warm milk for several more months.

F In July 1993 researchers poring over fresh photos from the bay found images that looked like a match for Calvin's baby pictures. Yes! The orphan had somehow made it alone. DNA from a skin sample taken in 1994 showed that curious, hardy Calvin was in fact a girl whale. Fertile adult females are the most valuable segment of the population. They number fewer than a hundred. Calvin seemed on the verge of adding one more to their ranks.

G For three years running, the researchers gauged the young female's blubber thickness with ultrasound. It's a tricky operation. "One whale's reaction jolted the skiff hard enough to send me flying overboard," Amy Knowlton of the research team recalled. Nevertheless, the researchers found Calvin growing pleasingly plump, a prime measure of health. On New Year's Eve of 1999, she was recorded for the first time in the Georgia Bight, an expanse of shallow coastal waters off Georgia and Florida, where right whales give birth. In summer of 2000 Calvin was once again in the Bay of Fundy, but this time she was snarled in fishing gear. Unbreakable polyblend ropes wrapped round

her body, cut into the skin, and trailed in her wake, slowing her down. Then researchers lost sight of the young female.

H Two to six right whales are found dead in a typical year, at least half of them killed by ship strikes or entanglement. Additional animals simply disappear. Since more than three-quarters of North Atlantic right whales bear scars from encounters with fishing gear, scientists wonder: How many of those missing are weighed down by ropes, nets, or crab and lobster pots for months or even years, the fat reserves that help keep them buoyant dwindling as they starve, fighting harder to reach the surface for each breath, until they finally give in to pain and exhaustion and sink?

I Months dragged by. Someone finally spotted Calvin in Cape Cod Bay during her hobbled journey back south. A disentanglement team from nearby Provincetown, Massachusetts, raced for the site and made two attempts to slice away her bindings. They couldn't get them all, but when Calvin was seen during 2001, she had worked free of the remnants.

J The corridor traveled by Calvin and the other North Atlantic right whales has grown ever more crowded with fishing activities and busy shipping lanes. Plumes of contaminants flow from river mouths, and the underwater din of ship traffic probably makes it increasingly difficult for the whales to communicate and keep track of one another. Though not as visible as wounds from boat prows and propeller blades or fishing gear webbed around struggling bodies, heavy chemical and noise pollution may take a gradual toll.

K During the 1980s the number of babies born annually was around 12. The total twice fell sharply in the 1990s until just a single calf appeared in 2000. Since then, the average has risen to more than 20 calves a year. Yet this remains 30 percent below the whales' potential rate of reproduction. Why? If scientists are to guide the species' salvation, they need more data and more answers. Fast.

Questions 1-6

The reading Passage has eleven paragraphs A-K.

Which paragraph contains the following information?

Write the correct letter A-K, in boxes 1-6 on your answer sheet.

NB you may use any letter more than once

1 A new and more profitable commercial finding about right whales.

2 The change of birth rate.

3 The migratory route of right whales.

4 The reason why right whales are easy to catch.

5 The methods to distinguish each right whale.

6 Right whales' living environment at present.

Questions 7-13

Summary

Complete the following summary of the paragraphs of Reading Passage, using no more than THREE words from the Reading Passage for each answer. Write your answers in boxes 7-13 on your answer sheet.

The scientists have studied right whales by setting up a(n) 7_____ . One of their interests is a whale named 8 _____ , who lost its mum when it was very young. Scientists were worriedabout the baby whale's future until it appeared again in 9 _____ . Later, it was found to be 10 _____ , being precious in the species. It was quite 11 _____ , which was a main symbol of health. Unfortunately, in summer of 2000, it was discovered being twisted in 12 _____ like polyblend ropes, and then disappeared. When it was seen months later, people tried to 13 _____ parts of ropes wrapping round its body, which were cleared during the next year.

Tasmanian tiger Extinction Is Forever?

"Danger, " says the sign on the door of a laboratory at the Australian Museum in Sydney: "Tasmanian Tiger, Trespassers will be eaten!" The joke is that the Tasmanian tiger—a beloved symbol of the island state that appears on its license plate—has been extinct for nearly seven decades. But researchers behind that door are working to bring the animal back to life by cloning it, using DNA extracted from specimens preserved decades ago. Among other things, the work raises questions about the nature of extinction itself.

A The Tasmanian tiger's Latin designation, Thylacinus cynocephalus, or "dog-headed pouched-dog," makes it redundantly clear that the marsupial's feline nickname is a misnomer. Yet its striped coat was cat-like, which runs nearly shoulder to tail. The animal had large, powerful jaws, which secured the predator a place atop the local food chain. Females carried their young in backward-facing pouches. Thylacines, once spread throughout mainland Australia and as far north as New Guinea, were probably outcompeted for food by the dingoes (猎狗) that humans introduced to the area some 4,000 years ago, says Australian Museum director Mike Archer, founder of the cloning project. Eventually, thylacines remained only on the dingo-free island of Tasmania, south of the mainland. But with the arrival of European settlers in the 1800s, the marsupial's days were numbered. Blamed (often wrongly) for killing livestock, the animals were hunted indiscriminately. The government made thylacines a protected species in 1936, but it was too late; It was a frigid winter night in 1936. A lone Tasmanian tiger huddled in his—or her—open enclosure at Hobart Zoo. With nowhere to shelter from the cold and no keepers to care, the delicately striped animal died. When this solitary animal—whose sex was not even recorded because of lack of interest—died, so did an entire species, the last specimen reportedly died in captivity the same year. What's more, with the passing into extinction of the Tasmanian tiger, Thylacinus cynocephalus, it was the end of the line for an entire family of marsupials that

had lived in Australia for millions of years.

B The Australian researchers set out to bring the animal back partly to atone for humanity's role in its extinction, Archer says. The idea took root 15 years ago when he saw a pickled thylacine pup in the museum's collection. "It jarred me and started me thinking," recalls the 58-year-old paleontologist and zoologist, who received his undergraduate degree from Princeton University and his doctorate from the University of Western Australia. "DNA is the recipe for making a creature. So if there is DNA preserved in the specimen, why shouldn't we begin to use technology to read that information, and then in some way use that information to reconstruct the animal? I raised the issue with a geneticist. The response was derisive laughter."

C Then, in 1996, Dolly the sheep burst onto the scene and, suddenly, Archer says, "cloning wasn't just a madman's dream." Dolly proved that DNA from an ordinary animal cell—in her case, a ewe's udder—could generate a virtually identical copy, or clone, of the animal after the DNA was inserted into a treated egg, which was implanted in a womb and carried to term. Archer's goal is even more ambitious: cloning an animal with DNA from long-dead cells, reminiscent of the sci-fi novel and movie Jurassic Park. The challenge? The DNA that makes up the chromosomes in which genes are bundled falls apart after a cell dies.

D Researchers working with Don Colgan, head of the museum's evolutionary biology department, extracted DNA from a thylacine pup preserved in alcohol in 1866, and biologist Karen Firestone obtained additional thylacine DNA from a tooth and a bone. Then, using a technique called polymerase chain reaction, the researchers found that the thylacine DNA fragments could be copied. The scientists next have to collect millions of DNA bits and pieces and create a "library" of

the possibly tens of thousands of thylacine genes—a gargantuan task, they concede. Still, an even greater obstacle looms, that of stitching all those DNA fragments together properly into functioning chromosomes; the scientists don't know how many chromosomes a thylacine had, but suspect that, like related marsupials, it had 14. But no scientist has ever synthesized a mammalian chromosome from scratch. If the Aussie scientists accomplish those feats, they may try to generate a thylacine by placing the synthetic chromosomes into a treated egg cell of a related species—say, a Tasmanian devil, another carnivorous marsupial—and implant the egg in a surrogate mother.

E Such cross-species cloning, as the procedure is called, is no longer fantasy. In 2001, Advanced Cell Technology (ACT) of Worcester, Massachusetts, succeeded in cloning, for the first time, an endangered animal, a rare wild ox called a gaur. This past April, scientists from ACT, Trans Ova Genetics of Sioux Center, Iowa, and the Zoological Society of San Diego announced they had cloned a banteng, an endangered wild bovine species native to Southeast Asia, using a domesticated cow as a surrogate mother. Meanwhile, researchers in Spain are trying to clone an extinct mountain goat, called a bucardo, using cells collected and frozen before the species' last member died in 2000. Other scientists hope to clone a woolly mammoth from 20,000-year-old specimens found in Siberian permafrost.

F Many scientists are skeptical of the thylacine project. Ian Lewis, technology development manager at Genetics Australia Cooperative Ltd., in Bacchus Marsh, Victoria, Australia, says the chances of cloning an animal from "snippets" of DNA are "fanciful." Robert Lanza, ACTs medical director and vice president, says cloning a thylacine is beyond existing science. But it may be within reach in several years, he adds: "This area of genetics is moving forward at an exponential rate."

G In Australia, critics say the millions of dollars that the thylacine project will cost would be better spent trying to save endangered species and disappearing habitats. One opponent, Tasmanian senator and former Australia Wilderness Society Director Bob Brown, says people might become blase about

conservation if they're lulled into thinking a lost species can always be resurrected. The research "feeds the mind-set that science will fix everything," he says.

Another concern touches on the great nature-nurture quandary: Would a cloned thylacine truly represent the species, given that it would not have had the chance to learn key behaviors from other thylacines? For some carnivores, says University of Louisville behavioral ecologist Lee Dugatkin, "it's clear that young individuals learn various hunting strategies from parents." And a foster parent might not fill the gap. Dugatkin asks whether a cloned Tasmanian tiger raised by a surrogate Tasmanian devil would just be a devil in tiger's clothing.

H But Archer says, in effect, a thylacine is a thylacine, however its DNA blueprint is obtained, because much animal behavior, including that of marsupials, is genetically hardwired or instinctual. We take kittens and raise them with humans, but they still behave like cats," he points out. And Archer, who envisions nature preserves populated by cloned thylacines and their offspring, says the project is actually a boon to conservation: it shows what it takes just to contemplate resurrecting a vanished species. For now, Archer and coworkers are trying to piece together the thylacine's exact genetic makeup.

Questions 14-19

Summary

Complete the following summary of the paragraphs of Reading Passage, using no more than three words from the Reading Passage for each answer. Write your answers in boxes 14-19 on your answer sheet.

Tasmanian tiger is a dog headed animal with a catlike 14 _____ and a pouch. For millions of years, Tasmanian tiger used to live widely in the continent of 15 _____ before the arrival of dingoes approximately 16 _____ ago; they afterwards survived in 17 _____ where there were no dingoes . The government gave orders to get rid of thylacines as 18 _____ wrongly considered they posed threat to their livestock. Last，the thylacinus cynocephalus had become extinct when last living specimen died in 19 _____ in the year of 1936.

Questions 20-25

Use the information in the passage to match the people (listed A-F) with opinions or deeds below. Write the appropriate letters A-F in boxes 20-25 on your answer sheet.

NB you may use any letter more than once

A Mike Archer
B Don Colgan and Karen Firestone
C Ian Lewis
D Robert Lanza
E Bob Brown
F Lee Dugatkin

List of Statement

20 proved that the thylacine DNA fragments could be copied

21 a cloned Tasmanian tiger raised by a surrogate Tasmanian devil would preserves the nature and not just be a devil in tiger's clothing

22 cloning an animal from fragment of DNA is bound to fail by current—day science yet hold a future

23 Conservation endeavour may be put in danger if misconception that everything can be rebuilt prevails

24 to reconstruct the animal and compensate for the loss that had been killed out partly by human beings

25 a carnivores' foster parent can not teach young individuals their total nature

Questions 26-27

Choose the correct letter, A,B,C or D.

Write your answers in boxes 26-27 on your answer sheet.

26 which of the animal has NOT been cloned as mentioned in the passage

A an ox called a gaur.

B a sheep called Dolly

C a wild bovine called a banteng

D a mammoth called a bucardo

27 What is the main idea of this article?

A To show a research concerning the causes of the extinction of Tasmanian tiger.

B To show how scientists try to conduct some researches on saving extinct animals.

C To come up with some ideas about how Tasmanian could have survived.

D To show what controversy in science concerning the cloning

Terminated Dinosaur Era

A The age of dinosaurs, which-ended with the cataclysmic bang of a meteor impact 65 million years ago, may also have begun with one. Researchers found recently the first direct, though tentative, geological evidence of a meteor impact 200 million years ago, coinciding with a mass extinction that eliminated half of the major groups of life and opened the evolutionary door for what was then a relatively small group of animals: dinosaurs.

B The cause and timing of the ascent of dinosaurs has have been much debated. It has been impossible to draw any specific conclusions because the transition between the origin of dinosaurs and their ascent to dominance has not been sampled in detail. "There is a geochemical signature of something important happening, probably an asteroid impact, just before the time in which familiar dinosaur-dominated communities appear," said Dr. Paul E. Olsen, a professor of earth and environmental sciences at Columbia University's Lamont-Doherty Earth Observatory in Palisades, N.Y.

C Olsen and his colleagues studied vertebrate fossils from 80 sites in four different ancient rift basins, part of a chain of rifts that formed as North America began to split apart from the supercontinent that existed 230-190million years ago. In the layer of rock corresponding to the extinction, the scientists found elevated amounts of the rare element iridium(铱). A precious metal belonging to the platinum group of elements, iridium is more abundant in meteorites than in rocks.

D On Earth, a similar spike of iridium in 65 million-year-old rocks gave rise in the 1970s to the theory that a meteor caused the demise of the dinosaurs. That theory remained controversial for years until it was corroborated by other evidence and the impact site was found off the Yucatan Peninsula. Scientists will need to examine the new iridium anomaly similarly. The levels are only about one-tenth as high as those found at the later extinction. That could mean that the meteor was smaller or contained less iridium or that a meteor was not involved-iridium can also come from the Earth's interior, belched

out by volcanic eruptions. Dr. Michael J. Benton, a professor of vertebrate paleontology at the University of Bristol in England, described the data as "the first reasonably convincing evidence of an iridium spike".

E The scientists found more evidence of rapid extinction in a database of 10.000 fossilized footprints in former lake basins from Virginia to Nova Scotia. Although individual species cannot usually be identified solely from their footprints-the tracks of a house cat, for example, resemble those of a baby tiger - footprints are much more plentiful than fossil bones and can provide a more complete picture of the types of animals walking around. "It makes it very easy for us to tell the very obvious signals of massive fauna change," Dr. Olsen said. Because the sediment piles up quickly in lake basins, the researchers were able to assign a date to each footprint, based on the layer of rock where it was found. They determined that the mix of animals walking across what is now the East Coast of North America changed suddenly about 200 million years ago.

F The tracks of several major reptile groups continue almost up to the layer of rock marking the end of the Triassic (三叠纪) geologic period 202 million years ago, and then vanish in younger layers from the Jurassic period (侏罗纪时期) "I think the footprint methodology is very novel and very exciting," said Dr. Peter D. Ward, a professor of geology at the University of Washington. He thought the data required further more research. Last year, researchers led by Dr. Ward reported that the types of carbon in rock indicating a sudden dying off of plant over less than 50,000 years. The footprint research reinforces the hypothesis that the extinction was sudden.

G Several groups of dinosaurs survived that extinction, and the footprints show that new groups emerged soon afterward. Before the extinction, about one-

fifth of the footprints were left by dinosaurs; after the extinction, more than half were from dinosaurs. The changes, the researchers said, occurred within 30,000 years-a geological blink of an eye. The scientists postulate that the asteroid or comet impact and the resulting death of Triassic competitors allowed a few groups of carnivorous dinosaurs to evolve in size very quickly and dominate the top of the terrestrial food chain globally.

H Among the creatures that disappeared in the extinction were the dominant predators at the time: 15-foot-long rauisuchians (劳氏鳄目) with great knife-like teeth and phytosaurs (植蜥类) that resembled large crocodiles. Dinosaurs first evolved about 230 million years ago, but they were small, competing in a crowded ecological niche. Before the extinction 200 million years ago, the largest of the meat-eating dinosaurs were about the see of large dogs. "Not terribly impressive." Dr. Olsen said. The dinosaurs quickly grew. The toe-to-heel length of the foot of a meat eater from the Jurassic period was on average 20 percent longer than its Triassic ancestor. Larger feet can carry bigger bodies; the scientists infer the dinosaurs doubled in weight, eventually evolving into fearsome velociraptors (迅猛龙), Tyrannosaurus rex (霸王龙) and other large carnivorous dinosaurs.

I The spurt in evolution is similar to the rise of mammals after the extinction of dinosaurs. Mammals, no larger than small dogs during the age of dinosaurs, diversified into tigers, elephants, whales and people after the reptilian competition died away. The success of the dinosaurs after the Triassic-Jurassic extinction may be why they did not survive the second extinction. "Small animals always do better in catastrophic situations," Dr. Olsen said, "because they can survive on smaller amounts of food." He also pointed out that scientists now believe the small dinosaurs did survive. "We just call them birds," he said.

Question 1-6

Use the information in the passage to match the people (listed A-C) with opinions or deeds (listed l-6) below.

Write the appropriate letter (A-C) in boxes l-6 0n your answer sheet.

A	Paul Olsen
B	Michael Benton
C	Peter Ward

1 Large animals are in a disadvantageous position when disasters happen.

2 Radical changes in carbon types are related to massive extinction of vegetation.

3 The changes in earth's animal species become easier to identify by adding footprint investigation.

4 Geochemical evidence suggests an asteroid impact before dinosaurs appeared.

5 Footprint study is a way of research

6 Persuasive clues of an iridium spike were discovered for the first time.

Question 7-13

Do the following statements agree with the information given in Reading Passage?
In boxes 7-130n your answer sheet write

TRUE	*if the sataement agrees with the information*
FALSE	*if the statement contradicts the information*
NOT GIVEN	*if there is no information on this*

7 The rare element, iridium, was presented both on earth and in meteorites.

8 The meteor impact theory had been suspected before the discover of the impact site and other supporting evidence.

9 Footprints are of little value in providing information, in comparison to fossil bones, because individual species cannot be identified with footprints.

10 According to scientists, the transition to a dinosaur-dominated era took place very quickly by geological time scales.

11 The creatures that disappeared in the extinction were the dominantly the 15-foot-long rauisuchians and large crocodiles.

12 Tyrannosaurus rex was larger in body size than other carnivorous dinosaurs.

13 Large dinosaurs died out but small ones evolved and competed with birds and mammals.

The Bite That Heat

Scientists are unlocking the medical potential of venom.

A Michael decided to go for a swim. He was on vacation with his family in Guerrero, Mexico, and it was hotter than blazes. He grabbed his swimming trunks from where they'd been drying on a chair, slid them on, and jumped into the pool. Instead of cool relief, a burning pain ripped through the back of his thigh. Tearing off his trunks, he leaped naked from the pool, his leg on fire. Behind him a small, ugly, yellow creature was treading water. He scooped it into a Tupperware container, and the caretaker of the house rushed him to the local Red Cross facility, where doctors immediately identified his attacker: a bark scorpion, Centruroides sculpturatus, one of the most venomous species in North America. The fierce pain from a sting is typically followed by what feels like electric shocks racking the body. Occasionally victims die.

B Lucklily for Michael (who asked me not to give his Ml name), the bark scorpion is common in the area, and antivenom was readily available. He had an injection and was released a few hours later. In about 30 hours the pain was gone. What happened next could not have been predicted. For eight years Michael had endured a condition called ankylosing spondylitis, a chronic autoimmune disease of the skeleton, a sort of spinal arthritis. No one knows what triggers it. In the worst cases the spine may fuse, leaving the patient forever stooped and in anguish. "My back hurt every morning, and during bad flare-ups it was so horrible I couldn't even walk," he says.

C But days after the the scorpion sting, the pain went away, and now, two years later, he remains essentially pain free and off most of his medications. As a doctor himself, Michael is cautious about overstating the role of the scorpion's venom in his remission. Still, he says, "if my pain came back, I'd let that scorpion sting me again." Venom-the stuff that drips from the fangs and stingers of creatures lurking on the hiking trail or hiding in the cellar or under the woodpile—is nature's most efficient killer. Venom is exquisitely honed

to stop a body in its tracks. The complex soup swirls with toxic proteins and peptides——short strings of amino acids similar to proteins. The molecules may have different targets and effects, but they work synergistically for the mightiest punch. Some go for the nervous system, paralyzing by blocking messages between nerves and muscle. Some eat away at molecules so that cells and tissues collapse. Venom can kill by clotting blood and stopping the heart or by preventing clotting and triggering a killer bleed.

D All venom is multifaceted and multitasking. (The difference between venom and poison is that venom is injected, or dibbled, into victims by way of specialized body parts, and poison is ingested.) Dozens, even hundreds, of toxins can be delivered in a single bite, some with redundant jobs and others with unique ones. In the evolutionary arms race between predator and prey, weapons and defenses are constantly tweaked. Drastically potent concoctions can result: Imagine administering poison to an adversary, then jabbing him with a knife, then finishing him off with a bullet to the head. That's venom at work.

E Ironically, the properties that make venom deadly are also what make it so valuable for medicine. Many venom toxins target the same molecules that need to be controlled to treat diseases. Venom works fast and is highly specific. Its active components—those peptides and proteins, working as toxins and enzymes—target particular molecules, fitting into them like keys into locks. Most medicines work the same way, fitting into and controlling molecular locks to thwart ill effects. It's a challenge to find the toxin that hits only a certain target, but already top medicines for heart disease and

diabetes have been derived from venom. New treatments for autoimmune diseases, cancer, and pain could be available within a decade.

F "We aren't talking just a few novel drugs but entire classes of drugs," says National Geographic Society Emerging Explorer Zoltan Takacs, a toxinologist and herpetologist. So far, fewer than a thousand toxins have been scrutinized for medicinal value, and a dozen or so major drugs have made it to market. "There could be upwards of 20 million venom toxins out there waiting to be screened," Takacs says. "It's huge. Venom has opened up whole new avenues of pharmacology." Toxins from venom and poison sources are also giving us a clearer picture of how proteins that control many of the body's crucial cellular functions work. Studies of the deadly poison tetrodotoxin (TTX) from puffer fish, for instance, have revealed intricate details about the way nerve cells communicate.

G "We 're motivated to look for new compounds to lessen human suffering," Angel Yanagihara of the University of Hawaii told me. "But while doing that, you may uncover things you don't expect." Driven in part out of revenge for a box jellyfish sting she endured 15 years ago, Yanagihara discovered a potential wound-healing agent within the tubules that contain jellyfish venom. "It had nothing to do with the venom itself," she said. "By getting intimate with a noxious animal, I've been informed way beyond my expectations."

H More than 100,000 animals have evolved to produce venom, along with the glands to house it and the apparatuses to expel it: snakes, scorpions, spiders, a few lizards, bees, sea creatures such as octopuses, numerous species of fish, and cone snails. The male duck-billed platypus, which carries venom inside ankle spurs, is one of the few venomous mammals. Venom and its components emerged independently, again and again, in different animal groups. The composition of the venom of a single snake species varies from place to place and between adults and their young. An individual snake's venom may even change with its diet.

I Although evolution has been fine-tuning these compounds for more than a hundred million years, venom's molecular architecture has been in place much longer. Nature repurposes key molecules from around the body—the blood, brain, digestive tract, and elsewhere—to serve animals for predation or protection. "It makes sense for nature to steal the scaffolds already in place," Takacs says. "To make a toxin to wreck the nervous system, it's most efficient to take a template from the brain that already works in that system, make some tiny changes, and there you have it: Now it's a toxin." Not all venom kills, of course—bees have it as a nonlethal defense, and the male platypus uses it to show rival males who's boss during mating season. But mostly it's for killing, or at least immobilizing, an animal's next meal. Humans are often accidental victims. The World Health Organization estimates that every year some five million bites kill 100,000 people, although the actual number is presumed to be much higher. In rural areas of developing countries, where most bites occur, victims may not be able to get treatment or may instead choose traditional therapies and are therefore not counted.

Questions 1-9

Do the following statements agree with the information given in Reading Passage 1 ?

In boxes 1-9 on your answer sheet, write

TRUE	*if the sataement agrees with the information*
FALSE	*if the statement contradicts the information*
NOT GIVEN	*if there is no information on this*

1 Michael was unluckily hit by electric shocks and nearly lost his life during his vacation.

2 The disease Michael had suffered from for eight years was caused by an accident

3 Michael is grateful for the bark scorpion bite because it helped him recover from the ankylosing spondylitis.

4 No venom is just responsible for one job.

5 There is no difference between venom and poison.

6 Venom can kill while it can also be used as medicine to save.

7 New treatments for cancer are now available in the market.

8 So far 20 million venom toxins have been checked for medical use.

9 The majority of mammals carry venom inside their bodies.

Questions 10-14

Complete the sentences below.

Choose ***NO MORE THAN TWO*** words from the Reading Passage for each answer.

Write your answers in boxes 10-14 on your answer sheet.

10 The way how venom works is compared to that of _____ .

11 A venom source such as _____ has helped to present complex facts about how nerve cells convey information to each other.

12 Tens of thousands of animals have developed _____ and _____ which are respectively responsible for storing and letting out venom.

13 The makeup of venom of a snake may change with places, ages and _____ .

14 Some animal uses venom to warn _____ of its exclusive power during the mating season.

The Dinosaurs Footprints and Extinction

A Everybody knows that the dinosaurs were killed by an asteroid. Something big hit the earth 65 million years ago and, when the dust had fallen, so had the great reptiles. There is thus a nice, if ironic, symmetry in the idea that o similar impact brought about the dinosaurs' rise. That is the thesis proposed by Paul Olsen, of Columbia University, and his colleagues in this week's Science.

B Dinosaurs first appear in the fossil record 230m years ago, during the Triassic period. But they were mostly small, and they shared the earth with lots of other sorts of reptile. It was in the subsequent Jurassic, which began 202million years ago, that they overran the planet and turned into the monsters depicted in the book and movie "Jurassic Park" (侏罗纪公园) . (Actually, though, the dinosaurs that appeared on screen were from the still more recent Cretaceous (白垩纪) period.) Dr Olsen and his colleagues are not the first to suggest that the dinosaurs inherited the earth as the result of an asteroid strike. But they are the first to show that the takeover did, indeed, happen in a geological eyeblink.

C Dinosaur skeletons are rare. Dinosaur footprints are, however, surprisingly abundant. And the sizes of the prints are as good an indication of the sizes of the beasts as are the skeletons themselves. Dr Olsen and his colleagues therefore concentrated on prints, not bones.

D The prints in question were made in eastern North America, a part of the world then full of rift valleys similar to those in East Africa today. Like the modern African rift valleys, the Triassic (三叠纪) /Jurassic American ones contained lakes, and these lakes grew and shrank at regular intervals because of climatic changes caused by periodic shifts in the earth's orbit. (A similar phenomenon is responsible for modern ice ages.) That regularity, combined with reversals in the earth's magnetic field, which are detectable in the tiny fields of certain magnetic minerals, means that rocks from this place and period can be dated to within a few thousand years. As a bonus, squishy (*adj.* 粘糊糊的) lake-edge sediments are just the things for recording the tracks of passing animals. By dividing the labour between themselves, the ten authors of the paper were able

to study such tracks at 80 sites.

E The researchers looked at 18 so-called ichnotoxo(群落). These are recognisable types of footprint that cannot be matched precisely with the species of animal that left them. But they can be matched with a general sort of animal, and thus act as an indicator of the fate of that group, even when there are no bones to tell the story.

F Five of the ichnotaxa disappear before the end of the Triassic, and four march confidently across the boundary into the Jurassic. Six, however, vanish at the boundary, or only just splutter across it; and three appear from nowhere, almost as soon as the Jurassic begins.

G That boundary itself is suggestive. The first geological indication of the impact that killed the dinosaurs was an unusually high level of iridium in rocks at the end of the Cretaceous, when the beasts disappear from the fossil record. Iridium is normally rare at the earth's surface, but it is more abundant in meteorites. When people began to believe the impact theory, they started looking for other Cretaceous-end anomalies. One that turned up was a surprising abundance of fern spores in rocks Just above the boundary layer-a phenomenon known as a "fern spike"(蕨类)

H That matched the theory nicely. Many modern ferns are opportunists. They cannot compete against plants with leaves, but if a piece of land is cleared by, say, a volcanic eruption, they are often the first things to set up shop there. An asteroid strike would have scoured much of the earth of its vegetable cover, and provided a paradise for ferns. A fern spike in the rocks is thus a good indication that something terrible has happened.

I Both an iridium (铱) anomaly and a fern spike appear in rocks at the end of the Triassic, too. That accounts for the disappearing ichnotaxa: the creatures that made them did not survive the holocaust. The surprise is how rapidly

the new ichnotaxa appear. Eubrontes giganteus, for example, is there a mere 10,000 years after the iridium anomaly. The Eubrontes (一种大脚印) prints were made by theropods-the dinosaur group that went on to produce such nightmares as Allosaurus(异龙)and Tyrannosaurus(暴龙) -and Eubrontes is already 20% bigger than any theropod track recorded from the Triassic.

J Dr Olsen and His colleagues suggest that the explanation for this rapid increase in size may be a phenomenon called ecological release. This is seen today when reptiles (which, in modern times, tend io be small creatures) reach islands where they face no competitors. The most spectacular example is on the Indonesian island of Komodo, where local lizards have grown so large that they are often referred to as dragons. The dinosaurs, in other words, could flourish only when the competition had been knocked out.

K That leaves the question of where the impact happened. No large hole in the earth's crust seems to be 202m years old. It may, of course, have been overlooked. Old craters are eroded and buried, and not always easy to find. Alternatively, it may have vanished. Although continental crust is more or less permanent, the ocean floor is constantly recycled by the tectonic processes that bring about continental drift. There is no ocean floor left that is more than 200m years old, so a crater that formed in the ocean would have been swallowed up by now.

L There is a third possibility, however. This is that the crater is known, but has been misdated. The Manicouagan "structure", a center in Quebec, is thought to be 214m years old. It is huge-some 100km across-and seems to be the largest of between three and five craters that formed within a few hours of each other as the lumps of a disintegrated comet hit the earth one by one. Such an impact would surely have had a perceptible effect on the world, but the rocks from 214m years ago do not record one. It is possible, therefore, that Manicouagan (根陨石坑) has been misdated. That will be the next thing to check.

Question 1-6

Do the following statements agree with the information given in Reading Passage 1?
In boxes1-6 on your answer sheet, write

TRUE	*if the sataement agrees with the information*
FALSE	*if the statement contradicts the information*
NOT GIVEN	*if there is no information on this*

1 Dr Paul Olsen and his colleagues believe that asteroid knock may also lead to dinosaurs' boom

2 Books and movie like Jurassic Park often exaggerate the size of the dinosaurs.

3 Dinosaur footprints are more adequate than dinosaur skeletons.

4 The prints were chosen by Dr Olsen to study because they are convenient to tracked down into a date of geological precise within thousands years.

5 Ichnotaxa showed that footprints of dinosaurs offer exact information of the trace left by an individual species.

6 We can find more Iridium in the earth's surface than in meteorites.

Questions 7-13

Complete the following summary of the paragraphs of Reading Passage, using no more than two words from the Reading Passage for each answer. Write your answers in boxes 7-13 0n your answer sheet.

Dr Olsen and his colleagues applied a phenomenon named 7 _____ to explain the large size of the Eubrontes, which is a similar case to that nowadays reptiles invade a place where there are no 8 _____ ; for example, on an island called Komodo, indigenous huge lizards grow so big that people even referring them as 9 _____ However, there were no old impact trace being found? The answer may be that we have 10 _____ the evidence. Old craters are difficult to spot or it probably 11 _____ due to the effect of the earth moving. Even a crater formed in Ocean had been 12 _____ under the impact of crust movement. Beside, the third hypothesis is that the potential evidences- some craters may be 13 _____ .

The last March of the Emperor Penguins

A THE emperor penguin is an impossible bird. It breeds in the middle of winter in some of the coldest places on Earth, surviving temperatures as low as-50 ℃ and hurricane-force winds. In March or April, just as the Antarctic winter begins, the birds waddle across the sea ice to their colonies, where they mate. After the egg is laid, the females head back to sea to feed, leaving the males behind to incubate it. By the time the females return in July or August, when the eggs hatch, the males will have spent almost four months huddling together in the bitter cold without eating, losing half of their body weight. This extraordinary lifestyle has made the emperors famous. They have even been held up as role models by evangelical Christians. But these breathtaking birds will soon have to face the one thing they haven't evolved to cope with: warmth. Fast-forward a few decades, and many colonies will be on the road to extinction. Are we witnessing the last march of the emperor penguins?

B Finding out what's going on with emperor penguins is a huge challenge as almost all of their colonies are exceedingly difficult to get to. In fact, it was only this year that the first global census of the birds was published, based on an automated analysis of satellite images by the British Antarctic Survey. This revealed four previously unknown colonies, bringing the total to 46 (see map), and put the number of adults at 600,000, nearly double earlier estimates. That might sound like good news, but it's impossible to say whether the overall number of birds is rising or falling. "It's simply that we now have a better method to find them-remote sensing," says team member Phil Trathan.

C By far the most comprehensive insight into the highs and lows of emperor populations comes from just one colony, which happens to be next to the Dumont d'Urville research station on the Adelie coast of Antarctica. "After a snowstorm, they can see how many eggs have got frozen, and how many chicks have died," says biologist Stephanie

Jenouvrier of the Woods Hole Oceanographic Institution in Massachusetts, who studies the birds. This relatively small colony of 2500 birds featured in the 2005 blockbuster documentary March of the Penguins.

D The Dumont d'Urville emperor's have been closely monitored since 1962. During the 1970s and early 80s, the average winter temperature was-14.7 ℃, compared with a more typical-17.3 ℃. This "warm spell" reduced the extent of winter sea ice by around 11 per cent-and the penguin population by half. "When sea ice decreased, it caused strong mortality of emperor penguins," says Jenouvrier. Why are emperors so sensitive to changes in sea ice? Well to start with, most never set foot on land. They aren't agile enough to scale the steep rocks and ice precipices that guard most of Antarctica's shoreline. All but two of the 46 colonies are on fast ice-sea ice stuck fast to the shore. So if the sea ice forms late or breaks up early, it won't last for the eight months or so these large birds need to breed and raise chicly

E "Early break-up of sea ice can cause catastrophic breeding failure," says Trathan. Emperors live around 20 years, so colonies can survive a few bad breeding seasons, but persistent changes can be disastrous. What's more, emperors moult every year in January or February. The birds would freeze to death if they tried to swim during the 30 or so days it takes to grow new feathers, so they must find ice floes to shelter on that are large enough to survive this period. This may be an even more demanding period in the emperors' lives than the winter, because they have little time to fatten themselves up beforehand. "The adults are reliant on stable sea ice for moulting, and for me, that's the greatest concern," says Gerald Kooyman of Scripps Institution of Oceanography, one of the world's leading emperor penguin biologists. "They don't have any options. They have to moult."

F Last, but not least, the source of much of the penguins' energy, directly or indirectly, is krill-and krill also depend on sea ice. Young krill shelter and feed under it. "The sea ice is the basis of the Antarctic ecosystem," says Jenouvrier. For now, there is still plenty of sea ice. In fact, the extent of Antarctic sea ice in winter has increased slightly over the last 30 years. This has been caused

by stronger winds blowing sea ice further away from the land, with more ice forming in the open water exposed by this movement. The stronger winds are thought to be a consequence of ozone loss, rather than global warming.

G But unlike the Arctic Ocean, where thick sea ice used to survive from year to year, in Antarctica almost all the sea ice melts every year. That means the extent of winter sea ice changes rapidly in response to any change in conditions. This can be seen around the rapidly warming Antarctic Peninsula, where winter sea ice extent is falling 1 or 2 per cent each year. Here one small emperor colony, on the Dion Islands, has already died out. When it was discovered in 1948 it was home to 300 adults. By 1999，just 40 remained and 10 years later they were all gone. Though no one knows for sure what caused the colony's demise, it coincided with a decline in the duration of winter sea ice. On the peninsula, populations of the other Antarctic native penguins, the Adelie and chinstrap, are also plummeting, probably because of the changing

environment and declining krill. Matters haven't been helped by an invasion of non-native gentoo penguins, and other species like the king and macaroni penguins could follow.

H What's happening on the peninsula today could be happening all around Antarctica in the decades to come. "With a doubling of greenhouse gas concentrations over the next century, we estimate that the extent of Antarctic sea ice would decrease by about one third, says John Turner, a climatologist with the British Antarctic Survey. Earlier this year the emperor penguin was added to the IUCN's Red List for species threatened with extinction in the near future-"near" meaning in a century or two. When Jenouvrier's team used the observations at Dumont d'Urville to predict what will happen as the continent warms, they concluded that the colony is likely to decline by 81 per cent by 2100 and be heading towards extinction .

I That is in line with a 2010 study by a team including Jenouvrier and David Ainley of the California-based ecological consultants H. T. Harvey and Associates. It predicted that all emperor colonies north of 70 degrees latitude-about 35 per cent of the total population-would decline or disappear if the world warms by 2℃ , although a few colonies south of 73 degrees might grow a little. This might not sound too bad, but both these studies are based on what increasingly appear to be overly optimistic assumptions. If we continue as we are, the global temperature will climb above 2 ℃ before 2050, on course to a 5 or 6 ℃ rise by 2100. "If the earth warms by 5 or 6 degrees, I can't see that there's going to be much sea ice left anywhere on Earth," says Ainley. And if the sea ice vanishes, the emperor penguins will vanish too.

Questions 1-6

Use the information in the passage to match the people (listed A-E) with opinions or deeds below. Write the appropriate letters A-E in boxes 1-6 on your answer sheet.

NB you may use any letter more than once

A	Stephanie Jenouvrier
B	Gerald Kooyman
C	Phil Trathan
D	David Ainley
E	John Turner

1 Penguin breeding is threatened by sea ice melting in advance.

2 About 30% sea ice would disappear in the future.

3 Penguin needs constant sea ice for feather changing.

4 Dead chicks are easy to be counted after a storm.

5 No sea ice left in case global temperature increased certain degrees.

6 Sea ice provides foundation for Antarctic ecology.

Questions 7-10

Do the following statements agree with the information given in Reading Passage 1?
In boxes 7-10 on your answer sheet, write

TRUE	*if the sataement agrees with the information*
FALSE	*if the statement contradicts the information*
NOT GIVEN	*if there is no information on this*

7 It is the female emperor penguin that carried more incubation duty.

8 Evangelical Christian lives a similar lifestyle as penguin.

9 With the advanced satellite photographs, fluctuation of penguin number is easily observed.

10 Strong winds caused by Ozone depletion, blow away the sea ice.

Questions 11-13

Summary

Complete the following summary of the paragraphs of Reading Passage, using, than two words from the Reading Passage for each answer. Write your answers in boxes 11-13 on your answer sheet.

There are several reasons of why emperor penguins are vulnerable to sea ice transformation. First of all, they are not 11_____to walk on steep rocks that all over Antarctica. They wouldn't be able to breed. Next, emperors need to 12_____at certain time of year, which protects them from been killed by freezing water. Finally, emperor penguin's food called 13_____is also connected to availability of sea ice.

the U-Evolution of the Turtles

The word turtle is a tiresome example of Bernard Shaw's observation: England and America are two countries divided by a common language. In British usage, turtles live in water and tortoises on land. For Americans, tortoises are those turtles that live on land.

A There is good evidence that the most recent common ancestor of all today's tortoises, including those on the mainlands of America, Australia, Africa and Eurasia, as well as the giants of Galapagos (加拉帕戈斯群岛), Aldabra, the Seychelles and other oceanic islands, was itself a land tortoise.)In their recent ancestry, to misquote Stephen Hawking, it's tortoises all the way down. The various giant tortoises of the Galapagos Islands are certainly descended from South American land tortoises.

B If you go back far enough everything lived in the sea: watery alma mater of all life. At various points in evolutionary history, enterprising individuals within many different animal groups moved out onto the land, sometimes even to the most parched (炙热的) deserts, taking their own private sea water with them in blood and cellular fluids. In addition to the reptiles, birds, mammals and insects which we see all around us, other groups that have succeeded out of water include scorpions, snails, crustaceans such as woodlice and land crabs, millipedes and centipedes, spiders and their kin and various worms. And we mustn't forget the plants, without whose prior invasion of the land none of the other migrations could have happened.

C Moving from water to land involved a major redesign of every aspect of life, from breathing to reproduction: it was a great trek through biological space. Nevertheless, with what seems almost like perversity, a good number of thoroughgoing land animals later turned around, abandoned their hard-earned terrestrial re-tooling, and trooped back into the water again. Seals and sea

lions (such as the breathtakingly tame Galapagos sea lion) have only gone part-way back. They show us what the intermediates might have been like, on the way to extreme cases such as whales and dugongs (海牛). Whales (including the small whales we call dolphins), and dugongs with their close cousins the manatees (海牛一种), ceased to be land creatures altogether and reverted to the full marine habits of their remote ancestors. They don't even come ashore to breed. They do, however, still breathe air, having never developed anything equivalent to the gills of their earlier marine incarnation.

D Other animals that have returned from land to water are pond snails, water spiders, water beetles, Galapagos flightless cormorants, penguins (Galapagos has the only penguins in the northern hemisphere), marine iguanas (found nowhere but Galapagos) and turtles (abundant in the surrounding waters).

E Turtles went back to the sea much longer ago. They are, in one respect, less fully given back to the water than whales or dugongs, for turtles still lay their eggs on beaches. Like all vertebrate returnees to the water, they breathe air, but in this department they go one better than whales. Some turtles extract additional oxygen from the water through a pair of chambers at the rear end, richly supplied with blood vessels. One Australian river turtle, indeed, gets the majority of its oxygen by breathing, as an Australian would not hesitate to say, through its arse.

F There is evidence that all modern turtles are descended from a terrestrial ancestor who lived before most of the dinosaurs. There are two key fossils called Proganochelys quenstedti and Palaeochersis talampayensis dating from early dinosaur times, which appear to be close to the ancestry of all modern

turtles and tortoises. You might wonder how we tell whether fossil animals, especially if only fragments are found, lived on land or in water. Sometimes it's pretty obvious. Ichthyosaurs (鱼龙) were reptilian contemporaries of the dinosaurs, with fins and streamlined bodies. The fossils look like dolphins and they surely lived like dolphins, in the water. With turtles it is a little less obvious. One neat way to tell is by measuring the bones of their forelimbs.

G Walter Joyce and Jacques Gauthier, at Yale University, took three key measurements in the arm and hand bones of 71 species of living turtles and tortoises. They used a kind of triangular graph paper to plot the three measurements against one another. Lo and behold, all the land tortoise species formed a tight cluster of points in the upper part of the triangle; all the water turtles cluster in the lower part of the triangular graph. There was no overlap, except when they added some species that spend time in both water and land. Sure enough, these amphibious species show up, on the triangular graph, half way between the "wet cluster" and the "dry cluster". Well then, to the obvious next step: where do the fossils fall? The hands of Palaeochersis quenstedti and Palaeochersis talampayensis leave us in no doubt. Their points on the graph are right in the thick of the dry cluster. Both these fossils were dry-land tortoises. They come from the era before our turtles returned to the water.

H You might think, therefore, that modern land tortoises have probably stayed on land ever since those early terrestrial times, as most mammals did after a few of them went back to sea. But apparently not. If you draw out the family tree of all modern turtles and tortoises,

nearly all the branches are aquatic. Today's land tortoises constitute a single branch, deeply nested among branches consisting of aquatic turtles. This suggests that modern land tortoises have not stayed on land continuously since the time of P. quenstedti and P. talampayensis (两种远古海龟). Rather, their ancestors were among those who went back to the water, and they then re-emerged back onto the land in (relatively) more recent times.

I Tortoises therefore represent a remarkable double return. In common with all mammals, reptiles and birds, their remote ancestors were marine fish and before that various more or less worm-like creatures stretching back, still in the sea, to the primeval bacteria. Later ancestors lived on land and stayed there for a very large number of generations. Later ancestors still evolved back into the water and became sea turtles. And finally they returned yet again to the land as tortoises, some of which, though not the Galapagos giants, now live in the driest of deserts.

Questions 28-29

Choose the TWO correct letters from the A-E

Write your answers in boxes 28-29 on your answer sheet.

What are the two amazing features for turtles?

A Their terrestrial ancestors lived as contemporaries of the dinosaurs,

B Some turtles can breathe oxygen from the body part in the rear end.

C The fossils of ancient turtles are with fins and streamlined bodies

D They don't even come ashore to breed.

E They had evolved back to the water, and they then re-evolved back onto the land

Questions 30-33

Answer the questions below.

Choose ***NO MORE THAN THREE WORDS AND/OR A NUMBER*** from the passage for each answer.

30 What have to be the first migrated species of lives which ensure others evolving from the sea onto the land?

31 Which transfer can be a significant leap as evolving from water to land is concerned?

32 Which is, being absent in whales or dolphins, the one of the proofs to show they may have evolved back from land to the sea.

33 What kind of animal show that if the fossil looks like those, it indicates the species is living in the sea even in ancient time?

Questions 34-36

Do the following statements agree with the information given in Reading Passage 1?

In boxes 34-36 on your answer sheet, write

TRUE	*if the sataement agrees with the information*
FALSE	*if the statement contradicts the information*
NOT GIVEN	*if there is no information on this*

34 Scientists can tell whether a species is living in the sea or land by examining the fossils.

35 The fossils can not serve as definite proofs for determining where one ancient species lived in dinosaur period from another.

36 Modern land tortoises are one group of turtles that stayed on land ever since and all through the ancient time.

Questions 37-40

Complete the following summary of the paragraphs of Reading Passage, using no more than Three words from the Reading Passage for each answer. Write your answers in boxes 37-40 on your answer sheet.

Walter Joyce and Jacques Gauthier, at Yale University, took three key measurements in the arm and hand bones of a group of living turtles and tortoises. They used 37 _____ on which to draw and mark the data collected. It was found that all the land tortoise and the water turtles species formed cluster of points in the different parts of the patterned graphs obtained; yet the clusters formed in those 38 _____ indicate there were kind of situation like between 39 _____ As a result, the fossils of both these ancient turtles' limbs and with their clusters show us both these ancient creatures were living in 40 _____

答 案

Animal minds: Parrot Alex 鹦鹉

Questions 1-13

1. NOT GIVEN
2. NOT GIVEN
3. FALSE
4. TRUE
5. TRUE（定位在 G 段前三行）
6. FALSE
7. 100 English words
8. Chimpanzees
9. avian cognition
10. particularly chosen
11. color
12. wrong pronunciation
13. teenager

Biomimetic Design 仿生动物

1-7

1 NG

2 False

3 True

4 True

5 NG

6 False

7 True

8-10

computer C 段末尾

carbon-fiber D 段倒数 4 行

limbs F 段第 4 行

11-13

lifesaving A 段倒数 5 行

self-cleaning G 段第 5 行

surveillance G 段倒数 6 行

Communicating in Colour 颜色交流

1. C

2. B

3. Tropical

4. Magomherae forest

5. (the) nose

6. YES

7. YES

8. NOT GIVEN

9. NO

10. NOT GIVEN

11. YES

12. NOT

13. NO

Copy your neighbour 蝴蝶颜色模仿

Questions 1-5

1. E

2. B

3. G

4. F

5. D

Questions 6-11

6. FALSE A 段倒数第 3 行

7. TRUE C 段倒数第 3 行
8. NOT GIVEN 无食物决定的相关信息
9. FALSE F 段第一行
10. NOT GIVEN 无 richest diversity 相关信息
11. TRUE F 段末尾

Questions 12-13

12. D H 段第三行
13. B I 段第三行

Extinct: the Giant Deer 麋鹿灭绝

Questions 28-32

28. 400,000 years ago
29. 8000 years ago
30. 7000 years ago
31. wooded interglacials
32. 10,500 years ago

Questions 33-35

33. Mal's huge antlers
34. minerals
35. habitat destruction

Fossil files "the paleobiology database" 古生物化石数据库

14. iii
15. i
16. ii
17. vi
18. v
19. iv
20. B
21. D
22. C

23. B
24. D
25. B
26. C

Giants Fall in Americas 消失的巨兽

1. C
2. B
3. D
4. D
5. A
6. D
7. C
8. A
9. B
10. A
11. The Americas
12. charcoal
13. fluted spear points/spear points

Health in the Wild 动物自疗

1. T
2. N
3. F
4. F
5. pith
6. terpenes
7. alkaloids
8. detoxify
9. hooks
10. G

11. D
12. E
13. C

Mammoth Kill 猛犸象灭绝

Questions 14-20

14. hunting B 段 9 行
15. overkill model B 段 10 行
16. disease E 段 3 行
17. empirical evidence E 段 9 行
18. climatic instability F 段 3 行
19. geographical ranges F 段 8 行
20. Younger Dryas event F 段 11 行

Questions 21-26

21. A F 段少数第 3 行
22. B E 段后一半
23. A B 段末尾
24. B E 段前一半
25. B D 段前 1 半
26. C F 段前 2 行

Numeracy : can animals tell numbers? 动物数字能力

15. identical
16. balls of paper
17. Count eggs
18. fruits flies
19. mosquitofish
20. surface area
21. sugar water
22. TRUE
23. FALSE

24. NOT GIVEN
25. TRUE
26. NOT GIVEN
27. TRUE

Right whale 脊美鲸

1-6 C K D B E J
7. archive
8. calvin
9. July 1993
10. a girl whale
11. plump
12. fishing gear
13. slice away

Tasmanian tiger Extinction Is Forever? 塔斯马尼亚虎

14. striped coat
15. Australia
16. 4000 years
17. Tasmania
18. European
19. captivity
20. B
21. A
22. D
23. E
24. A
25. F
26. D
27. B

Terminated! Dinosaur era! 恐龙灭绝

1. A
2. C
3. A
4. A
5. C
6. B
7. TRUE
8. TRUE
9. FALSE
10. TRUE
11. FALSE
12. NOT GIVEN
13. NOT GIVEN

The Bite That Heat 救命的一咬

1. FALSE
2. NOT GIVEN
3. TRUE
4. TRUE
5. FALSE
6. TRUE
7. FALSE
8. FALSE
9. FALSE

Questions 10-14

10. medicines
11. puffer fish
12. glands, apparatuses
13. diet
14. rival males

The Dinosaurs Footprints and Extinction 恐龙脚印及灭绝

1-6

1. YES
2. NOT GIVEN
3. YES
4. YES
5. NO
6. NO

7-13

7. ecological release
8. competitor
9. dragons
10. overlooked
11. vanished
12. swallowed up
13. Misdated

The last March of the Emperor Penguins 帝企鹅的征程

Questions 1-6

1. C E 段第一行
2. E H 段第 3 行
3. B E 段倒数 4 行
4. A C 段第 4 行
5. D I 段倒数 5 行
6. A F 段第 3 行

Questions 7-10

7. FALSE A 段第 8 行
8. NOT GIVEN
9. FALSE B 段倒数 4 行
10. TRUE F 段倒数第 2 行

Questions 11-13

11. Agile, D 段倒数 4 行

12. moult, E 段第 3 行

13. krill, F 段第 2 行

The U-evolution of the Turtles 海龟的反向进化

28. B

29. E

30. The Plants

31. (from) breathing to reproduction

32. The gills

33. Dolphins

34. TURE

35. NOT GIVEN

36. FALSE

37. triangle graph paper

38. amphibious species

39. half-wet and half-dry

40. dry land