

2023 届高三冲刺卷（三） 全国卷

理综生物参考答案及评分意见

1. B 【解析】衰老的生物体内的细胞并非都处于衰老状态，如新产生的血细胞，A 错误；细胞衰老时，细胞膜的选择透过性功能降低，B 正确；细胞衰老表现为细胞核体积变大、色素含量增加、部分酶的活性降低，C 错误；细胞的衰老受基因的控制，D 错误。来源：高三答案公众号

2. C 【解析】洋葱鳞片叶内表皮细胞的液泡中没有色素，A 错误；植物细胞发生质壁分离，指的是原生质层与细胞壁发生分离，B 错误；当细胞处于质壁分离状态时，可能继续失水，也可能吸水复原，也可能达到渗透平衡。如果细胞继续失水，则外界溶液浓度大于细胞液浓度；如果处于质壁分离复原的过程中，则外界溶液浓度小于细胞液浓度；如果达到渗透平衡，则外界溶液浓度等于细胞液浓度，C 正确；适宜用低倍镜观察植物细胞的质壁分离与复原现象，D 错误。

3. D 【解析】种子萌发过程中，细胞进行有氧呼吸消耗 O_2 产生 CO_2 ，产生的 CO_2 被 NaOH 浓溶液吸收，所以锥形瓶内的气体总量减少（减少的量即为吸收 O_2 的量），U 形管右侧液面上升，因此该实验的目的是测定种子萌发时吸收（或消耗） O_2 的速率，A 正确；为了防止微生物的呼吸作用干扰实验结果，实验前将种子预先在稀释的消毒剂中清洗以杀死种子表面的微生物，B 正确；锥形瓶中 NaOH 浓溶液的作用是吸收瓶中的 CO_2 ，便于测量有氧呼吸吸收 O_2 的速率，C 正确；由题图可知，45min 时标尺读数为 4.6cm，要求实际的有氧呼吸速率应减去基数 2.1cm，再减去误差 0.25cm，因此，同等条件下，萌发种子的实际有氧呼吸速率为 $(4.6-2.1-0.25)/15=0.05cm/min$ ，D 错误。

4. B 【解析】神经递质通过胞吐方式由突触前膜进入突触间隙，不需要转运蛋白的协助，A 错误；二者作用于突触后膜后引起突触后膜发生电位变化，此后立刻被灭活或运走，因此，结合起作用的时间较短，B 正确；多巴胺和甘氨酸尽管是小分子物质，但仍以胞吐作用方式释放到突触间隙中，C 错误；突触间隙中不能进行神经递质的合成，D 错误。

5. D 【解析】由题意可知， F_1 长翅果蝇相互交配， F_2 的比例为 8:4:3:1，是 9:3:3:1 的变形，说明果蝇翅长至少受两对独立遗传的基因控制，A 错误；根据 F_1 相互交配所得 F_2 中长翅雌果蝇:长翅雄果蝇:短翅雌果蝇:残翅雄果蝇=8:4:3:1 可知，翅长的遗传与性别相关联，若果蝇翅长受两对基因控制，则一对基因位于常染色体上，另一对基因位于 X 染色体上。设相关基因为 A/a、B/b，根据 F_2 的性状分离比可知， F_1 长翅雌、雄果蝇的基因型分别为 AaX^BX^b 、 AaX^BY ，而 F_2 中长翅雌果蝇占 8/16，长翅雄果蝇占 4/16，短翅雌果蝇占 3/16，残翅雄果蝇占 1/16，可知 F_2 中长翅雌果蝇的基因型为 $A_X^BX^b$ 、 aaX^BX^b ，长翅雄果蝇的基因型为 A_X^BY 、 aaX^BY ，短翅雌果蝇的基因型为 $A_X^bX^b$ ，残翅雄果蝇的基因型为 aaX^bY ，则 F_2 长翅雌果蝇的基因型共有 $3 \times 2=6$ 种，B 错误；若 F_2 雌果蝇的基因型为 $AA_X^BX^b$ ，则其与 F_2 的长翅雄蝇（ AA_X^BY 、 aaX^BY 、 AaX^BY 三种）杂交都不能得到残翅雌果蝇，C 错误； F_1 长翅雌果蝇（ AaX^BX^b ）与 F_2 短翅雄果蝇（ $1/3AA_X^bY$ 、 $2/3AaX^bY$ ）杂交，后代产生残翅雌果蝇（ aaX^bX^b ）的概率为 $2/3 \times 1/4 \times 1/2 \times 1/2=1/24$ ，D 正确。

6. C 【解析】鱼塘中心区与近岸区的生物分布不完全相同，在水平方向上有差异，体现了群落的水平结构特征，A 正确；蓝细菌属于微生物，调查某种蓝细菌的种群密度可用抽样检测法，B 正确；植物会为鱼创造栖息空间和食物，因此鱼会因植物的分层而分层，C 错误；饲料作为鱼的食物会影响鱼的环境容纳量，D 正确。

29. (10 分，除标注外，每空 1 分)

(1) 细胞呼吸（线粒体）和外界环境 光合作用固定的 CO_2 大于呼吸作用释放的 CO_2 （光合作用强度大于呼吸作用强度）

(2) 蔗糖和淀粉 气孔导度 叶片吸收 CO_2

(3) 干旱（低土壤含水量） 保持原状 正常浇水 实验组棉花植株光合速率与对照组相同（2 分）

【解析】(1) 若图中 B 组棉花植株 15 时测得的 CO_2 浓度为一天中最低，则表示此时该植株光合速率等于呼吸速率，而对于叶肉细胞来说，其光合作用速率大于细胞呼吸速率，否则无法满足植物体内其他细胞对有

机物的消耗，因此，此时叶肉细胞光合作用所需 CO_2 ，来源有细胞呼吸（线粒体）和外界环境。实验中植物光合作用吸收的 CO_2 大于呼吸作用释放的 CO_2 ，从而导致容器内 CO_2 浓度下降。

(2) 据图表分析，由于 B 组摘除棉铃（果实），叶片光合作用产物蔗糖和淀粉不能及时输出导致积累较多，同时相比较，B 组的气孔导度小，因此可推测抑制了叶片吸收 CO_2 。

(3) 在干旱（低土壤含水量）条件下培养获得棉花植株实验材料。实验组进行正常浇水处理，对照组保持原有状态。如果研究者观点正确，即水分亏缺导致叶绿体类囊体被破坏，从而直接影响光反应，而且不能恢复，则结果为正常浇水的实验组棉花植株光合速率与对照组相同，而不会出现大于对照组的情况。

30. (12 分，除标注外，每空 2 分)

(1) 酶 2 (1 分) 转录 (1 分) 组成酶的氨基酸种类、数量、排列顺序以及酶的空间结构不同

(2) 2 aaX^bX^b

(3) 12 1/9

【解析】(1) 据题干信息及分析可知，紫花植株基因型为双显，蓝花植株基因型为 A 存在的单显，其余为白花植株，即 a 基因纯合；根据 F_1 紫花植株杂交 F_2 的表型及比例，可以发现 F_2 雌株中紫：白=3:1； F_2 雄株中有花色（紫+蓝）：白=3:1；且雌雄在蓝花与紫花的表型上存在差异，推知控制酶 2 合成的基因 B 应该位于 X 染色体上；基因在细胞核内经过转录，再在核糖体上合成该酶；酶 1 与酶 2 在细胞中作用效果不同的直接原因，是组成酶的氨基酸种类、数量、排列顺序以及酶的空间结构不同。

(2) 由 F_1 杂交顺推， F_2 中蓝花植株的基因型有 2 种，为 AAX^bY , AaX^bY ；为了检测其基因型，可以选用基因型为 aaX^bX^b 的植株与其测交。

(3) 若让 F_1 紫花植株随机交配， F_1 紫花雌株基因型为 $\text{A}_1\text{X}^b\text{X}^b$ ，紫花雄株基因型为 $\text{A}_1\text{X}^b\text{Y}$ ，所以 F_2 的基因型：雌株为 $3 \times 2 = 6$ 种，雄株为 $3 \times 2 = 6$ 种，共 12 种。而白花植株的基因型只要符合 aa 即可，所占比例为 $2/3 \times 2/3 \times 1/4 = 1/9$ 。

31. (9 分，每空 1 分)

(1) J 过度繁殖

(2) N_2 生物 寄生

(3) 趋暗、趋湿、避高温 目测估计

(4) 调节生物的种间关系，以维持生态系统的稳定 自我调节能力

【解析】(1) 在资源丰富、缺少天敌近似理想状态下，种群密度增长呈“J”型模式。根据达尔文的自然选择学说，如果条件适宜、资源丰富，生物都具有过度繁殖的倾向。

(2) 蝗虫种群数量波动处于 N_1 和 N_3 之间，围绕 N_2 上下波动，因此推测环境容纳量应为 N_2 附近。引入绿僵菌、微孢子虫、痘病毒等微生物来感染草原蝗虫，属于利用它们与蝗虫之间的寄生关系，来达到生物防治的目的。

(3) 土壤小动物常具有趋暗、趋湿、避高温等特性，故设计诱虫器时应注意根据这些特点设计；对于个体较小而种群数量又比较大的群落，丰富度的统计方法一般采用目测估计法。

(4) 食草动物和草之间通过“绿色”物理信息来进行信息传递，可以调节生物的种间关系，以维持生态系统的稳定。正是生态系统具有自我调节能力，生态系统才能维持相对稳定，这种稳定性表现在抵抗力稳定性和恢复力稳定性两个方面。

32. (8 分，除标注外，每空 1 分)

(1) 内脏运动 促进消化腺（或“胃腺、肠腺”）的分泌活动，通过一系列过程产生抗炎效应（抑制炎症的程度或产生）(2 分)

(2) 电信号（或“局部电流”或“神经冲动”） 单

(3) 扩散 细胞间的信息交流 (2 分)

【解析】(1) 迷走神经是从脑干发出的可参与调节内脏活动的神经，属于内脏运动神经；据图分析，迷走神经促进胃腺、肠腺分泌消化液，能促进胃肠的蠕动和消化腺的分泌活动。另外，迷走神经释放乙酰胆碱进而抑制 $\text{TNF-}\alpha$ 的释放，对炎症有抑制作用。

(2) 兴奋在神经纤维上以电信号（或局部电流或神经冲动）的形式进行传导。在机体调节生命活动过程

中，兴奋传导的方向为单向。

(3) 迷走神经（传出神经）释放的乙酰胆碱在突触间隙中经扩散到达突触后膜，与肠巨噬细胞上的 N 受体结合从而抑制 TNF- α 的释放，这体现了细胞膜的信息传递或细胞间信息交流的功能。

37. (15 分，除标注外，每空 2 分)

- (1) 选择 (1 分) 鉴别 (1 分) 氮源、维生素
(2) 防止外来杂菌的入侵 在酒精灯火焰上引燃
(3) 稀释涂布平板 (或活菌计数) 偏低 (1 分) 30-300
(4) 6.1×10^6 来源：高三答案公众号

【解析】(1) 培养基类型按功能划分为选择培养基和鉴别培养基。蛋白胨可为培养物提供氮源和维生素成分。

(2) 在微生物培养过程中，获得纯净培养物的关键是防止外来杂菌的入侵。无菌操作中要对培养基、培养皿进行灭菌处理。涂布平板操作时，首先应将涂布器浸在盛有体积分数为 70% 酒精的烧杯中，涂布操作时涂布器上还留有少量酒精，应将其在酒精灯火焰上引燃。

(3) 在统计菌落数目时，常用稀释涂布平板法来统计样品中活菌的数目，因为统计的对象均是能形成菌落的活菌，也称为活菌计数法。实际当中，当两个或多个细胞连在一起时，平板上观察到的只是一个菌落，因此统计的菌落数往往比活菌的实际数目低。为排除其他因素干扰，保证结果的准确性，一般选择菌落数在 30-300 间的平板进行计数。

(4) 三个平板上菌落数分别是 54、69、60，平均菌落数为： $(54+69+60)/3=61$ ，则原菌液每 mL 的菌数为： $61/0.1 \times 10^4 = 6.1 \times 10^6$ (个/mL)。

38. (15 分，除标注外，每空 2 分)

- (1) 反向连接
(2) RNA 聚合 氯化钙 (Ca^{2+}) (1 分)
(3) 愈伤组织 生根、生芽 卡那霉素和海盐 (盐) ④
(4) 细胞分裂素

【解析】(1) 如果用 1 种限制酶同时处理 D1 质粒和含 BADI 基因的 DNA 片段，会产生四个均相同的黏性末端，任意两个相同黏性末端都会拼接在一起，因而除了正确拼接外，还会出现反向连接的情况。但是，如果用 2 种不同的限制酶就能使目的基因和质粒只有一种正确的拼接方式，可以防止以上结果出现。

(2) 构建基因表达载体时，目的基因的首端应加入启动子序列，RNA 聚合酶与其识别并结合就会开始转录；当受体生物为微生物细菌时，可采用钙离子转化法，即加入氯化钙 (提供 Ca^{2+})。

(3) 植物组织培养过程中，先将外植体的 1/3-1/2 插入诱导愈伤组织的培养基中。然后再将生长良好的愈伤组织转移到诱导生芽的培养基上。长出芽后，再将其转移到诱导生根的培养基上，进一步诱导形成幼苗。重组质粒中含有抗卡那霉素基因，苏丹草新品种具有耐盐特性，所以最终要想筛选出预期苏丹草耐盐幼苗，培养基中应含有卡那霉素和海盐 (盐) 这些关键成分。④为再分化过程，在分化培养基中形成幼苗过程需要适宜光照条件。

(4) 诱导愈伤组织产生不定芽，通常应在培养基中加入两类植物激素：细胞分裂素和生长素，生长素可促进根的分化，细胞分裂素可促进芽的分化，所以诱导愈伤组织产生不定芽时，起主要作用的植物激素为细胞分裂素。

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英语试题

注意事项:

- 1.答卷前,考生务必将自己的姓名考生号等填写在答题卡上。
- 2.回答选择题时,选出每小题答案后,用铅笔把答题卡上对应题目的答案标号涂黑。如需改动,用橡皮擦干净后,再选涂其他答案标号。来源:高三答案公众号。回答非选择题时,将答案写在答题卡上。写在本试卷上无效。
- 3.考试结束后,将本试卷和答题卡一并交回。

考试时间为 120 分钟,满分 150 分

第一部分 听力(共两节,满分 30 分)

做题时,先将答案标在试卷上。录音内容结束后,你将有两分钟的时间将试卷上的答案转涂到答题卡上。

第一节(共 5 小题;每小题 1.5 分,满分 7.5 分)

听下面 5 段对话,每段对话后有一个小题。从题中所给的 A、B、C 三个选项选出最佳选项。听完每段对话后,你都有 10 秒钟的时间来回答有关小题和阅读下一小题。每段对话仅读一遍。

1. How does Tom feel about his university life?
A. Tiring. B. Interesting. C. Disappointing.
2. Why does the man want to change the room?
A. The room is too small.
B. He dislikes the room number.
C. The air-conditioner doesn't work.
3. What are the speakers mainly talking about?
A. Their hobbies. B. The river. C. The stadium.
4. What is the original price of the coat?
A. 80 dollars. B. 300 dollars. C. 380 dollars.
5. Where does the conversation probably take place?
A. At the woman's home. B. In a clothing store. C. In a shoe shop.

第二节(共 15 小题;每小题 1.5 分,满分 22.5 分)

听下面 5 段对话或独白。每段对话或独白后有几个小题,从题中所给的 A、B、C 三个选项选出最佳选项。听每段对话或独白前,你将有时间阅读各个小题,每小题 5 秒钟;听完后,各小题将给出 5 秒钟的作答时间。每段对话或独白读两遍。

听第 6 段材料,回答第 6、7 题。

6. Why does Tina want leaves?
A. To give her mother as a gift.
B. To use them as bookmarks.
C. To make toys with Alice.

7. What will Tina do next?

- A. Take a shower. B. Read a book. C. Have a walk.

听第 7 段材料,回答第 8 至 10 题。

8. What is the probable relationship between Evan and the man?

- A. Friends. B. Strangers. C. Classmates.

9. What do the speakers want to do tomorrow?

- A. Go for a picnic with Evan. B. Invite Evan to their house. C. Practice soccer with Evan.

10. What do we know about the speakers' mother?

- A. She works with Evan's father.
B. She has never met Evan before.
C. She will be back home at five o'clock.

听第 8 段材料,回答第 11 至 13 题。

11. What is probably the man?

- A. A tourist. B. A taxi driver. C. A policeman.

12. How long will it take the woman to get to the National Museum of Art?

- A. Less than 12 minutes. B. No more than 18 minutes. C. More than 20 minutes.

13. Which is the most convenient for the woman to go to the Mexican restaurant?

- A. Taking a taxi. B. Taking a subway. C. Taking a bus.

听第 9 段材料,回答第 14 至 17 题。

14. What is the woman doing?

- A. Enjoying a film. B. Talking about her career. C. Hosting a program.

15. Where was Albert born?

- A. In America. B. In Africa. C. In Australia.

16. How old was Albert when he acted his first film?

- A. 49. B. 37. C. 28.

17. Which is Albert's most recent film?

- A. Sophie's Choice. B. Out of Africa. C. Music of the Heart.

听第 10 段材料,回答第 18 至 20 题。

18. What did the speaker do to make sure the young man was following her?

- A. She watched him in a shop window.
B. She called a taxi and jumped into it.
C. She walked quickly into a MRT station.

19. How did the speaker feel when she got out of the taxi?

- A. Worried. B. Puzzled. C. Angry.

20. Why did the young man follow the speaker?

- A. To steal her money. B. To write an article. C. To play with her.

第二部分阅读理解(共两节,满分 40 分)

第一节(共 15 小题;每小题 2 分, 满分 30 分)

阅读下列短文,从每题所给的 A、B、C 和 D 四个选项中,选出最佳选项。

A

Help Prevent Learning Loss This Summer

Quick Overview: With only a couple of hours a week, you can provide tutorship and emotional support for students that will improve their confidence, improve their academic performance, and increase their classroom engagement. Take the first step in becoming an online tutor for 3rd - 6th -grade students who don't have the benefit of paid tutoring.

Background : The past two years have worsened existing educational inequities(不公平), with many students suffering from significant learning loss. Students who fall behind often never catch up. The path to changing these situations is through extra instruction, which is what you are required to do!

Mission: Our goal is to increase engagement, improve academic outcomes, and strengthen students' social safety net. This opportunity offers free tutoring that addresses the widening academic gap and provides families with the support they need to succeed.

Impact: With your help, we can close the achievement gap that has widened during COVID- 19. In a safe one-on-one environment, you and your student can work in partnership to build a strong foundation upon which your student can learn and grow.

Volunteer Roles Responsibilities: You will be provided with training, support, and resources to help you and your student succeed. To join this community, you will need to complete the following:

- A 10-minute application and a short interview
- A 1-hour Zoom training
- A minimum of two hours per week to work one-on-one with a student online

Requirements:

- No tutoring experience required
- Access to a computer with a reliable Internet connection
- Some basic familiarity with Zoom
- Age minimum:18+

21. What's the purpose of the program?

- A. To improve teaching quality. B. To give students free lessons.
C. To close the gap between ages. D. To protect people from injury.

22. What will be provided for volunteers?

- A. Some training. B. A reliable Internet connection.
C. Chances of interviewing students. D. Financial support for transport.

23. What is a requirement for applicants?

- A. Being a Zoom expert. B. Being at least 18 years old.
C. Having teaching experience. D. Having excellent computer skills.

B

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Fourteen -year-old Harini Logan won the Scripps National Spelling Bee last Thursday, defeating 12-year-old Vikram Raju in a tie-breaker. It's the first time the contest has ever been decided by a tie -breaking round of spelling.

A spelling bee is a contest where players take turns spelling words. Players who spell a word wrong are out of the contest. As the contest goes on, the words get more difficult. Normally, the contest ends when there's only one player left who hasn't made a mistake. Though the bee is mainly about spelling, since 2021 it has changed slightly to also focus on the meaning of the words. During parts of the contest, students were asked to choose the correct meaning of a word.

That caused trouble for Harini. She was asked about the meaning of the word "pullulation". She said the word described the nesting of birds. The contest organizers had expected the answer the "swarming of bees". Harini was removed from the contest. But soon she was back in—the judges double—checked and learned that Harini's definition was also correct. One by one, the other students spelled a word wrong and got out. Finally, only Harini and Vikram were left.

The Scripps bee has been running for over 90 years. Many times it ended in a tie. As a result, the contest organizers changed the rules. They added a "spell-off" to the contest to make future ties much less likely. In the spell-off, Vikram and Harini each took turns trying to spell the words they were asked, but both made mistakes. At one point, Harini could have won by spelling the word "drimys" (a kind of plant) correctly. But she missed it.

That put the two into a super tie - breaking event, where they were each given 90 seconds to correctly spell as many words as they could. In 90 seconds, Vikram had spelled 15 words correctly. Harini had 21 correct spellings, making her the new winner.

24. What does the author want to show in Paragraph 2?

- A. The rules of the contest. B. The awards of the contest.
C. The organization of the contest. D. The way to take part in the contest.

25. Why did the contest organizers change the rules?

- A. To attract more teenagers. B. To avoid the result of a tie.
C. To make the contest fair. D. To reduce unexpected mistakes.

26. What does the text mainly talk about?

- A. A close spelling contest was held online.
B. The Scripps Spelling Bee changed its rules.
C. Many people won spots at a national contest.
D. A Teen wins Spelling Bee in exciting tie-breaker.

27. What is the text?

- A. A news report. B. A book review.
C. A research paper. D. A class presentation.

C

A program in Myanmar called Less Walk has found a creative way to provide free bikes

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to students who travel a long way on foot every day to get to school.

It's not often that two problems add up to one solution, but businessman Mike Than Tun Win seems to have made it happen. His program takes the problem of wasted rental bikes and turns them into an easy way for students in Myanmar to travel long distances to school.

In the last few years, companies like oBike, Ofo, and Mobike began flooding streets in places like China, Japan, Australia, and Singapore with bikes. But it didn't take long before there were too many companies and too many bikes on the streets. Soon many companies went out of business, leaving behind thousands of unused rental bikes. Many of them were brand new.

Mr. Than Tun Win realized that though these bikes didn't have any value where they were, they could do a lot of good for schoolchildren in Myanmar. Some children in Myanmar travel an hour or more on foot every day to get to school. Mr. Than Tun Win told the Singapore news site TodayOnline, "I thought if we could just reduce the time they take, they could spend more time studying, gain more knowledge and increase their chances of getting out of poverty.

Soon, Mr. Than Tun Win had raised around \$ 400,000 for the LessWalk project. The LessWalk project bought thousands of new rental bikes from failed companies and shipped them to Myanmar. But there was lots of paperwork involved in moving the bikes from one country to another. Once in Myanmar, the bikes are changed to make them more useful for students. With all the changes, Mr. Than says each bike costs LessWalk about \$ 35.

Though LessWalk only began in March, the project has already brought around 22,500 bikes into Myanmar and has given out over 1,000 bikes. Mr. Than Tun Win hopes to bring in as many as 100,000 bikes and expand the program to Laos and Cambodia.

28. What is the function of the first paragraph?

- A. To introduce the LessWalk program.
- B. To present a general outline of the text.
- C. To explain why bikes are provided for free.
- D. To appeal to readers to care for students in Myanmar.

29. What can we infer about the process of moving bikes to Myanmar?

- A. It needs Bike-sharing Companies' help.
- B. It costs LessWalk program a lot of money.
- C. It is a piece of cake for Mr. Than Tun Win.
- D. It is not as easy as Mr. Than Tun Win thought.

30. What is Mike Than Tun Win's attitude towards LessWalk project?

- A. Opposed. B. Suspicious. C. Hopeful. D. Concerned.

31. What is the suitable title for the text?

- A. LessWalk Brings Bikes to Students in Myanmar.
- B. Students in Myanmar will Go to School by Bike.
- C. Mr. Than Tun Win recycles Wasted Rental Bikes.

D. Bike-sharing Companies Hope to Make Lots of Money.

D

Steager is an engineer at the University of Pennsylvania. His colleague Hyun Koo is an inventor and dental researcher there. Together, they found a way to form the nanoparticles (纳米颗粒) into long, skinny bristles (鬃毛), a lot like the ones on a toothbrush. But these bristles shape-shift to fit whatever surface they encounter. They can even squeeze between teeth.

“A new way to clean teeth could help out anyone who finds this chore boring,” says Koo. But it would be especially life-changing for people with disabilities or illnesses that make it difficult or impossible to hold and move a toothbrush.

The tooth-cleaning robot works thanks to two magnets(磁铁). One goes on each side of the teeth. The nanoparticles sit in a water-based solution between the magnets. When the magnets are turned off, the nanoparticles float randomly in the solution. As soon as one magnet gets turned on, the nanoparticles clump together near its center. When you turn on the other magnet and turn off the first one, the nanoparticles extend outward in long, skinny bristles.

When there's a tooth in the way, these bristles can't stretch out as far as they want. So they push against the tooth's surface. If there's a gap between teeth, they push into the gap. Moving the magnets makes the bristles move against and between teeth.

Besides, as a bonus, the nanoparticles can kill what harms the teeth and keep them healthy because it contains something commonly added to toothpaste and mouthwash.

The new invention is just a proof of concept. The researchers still need to turn it into a product that people will want to use. It must fit comfortably and safely in people's mouths. It can't draw too much power or cost too much. “There's a lot of engineering to get from here to there,” says Steager. But he adds, “every good idea needs to have a start.”

32. What is a feature of the bristles?

- A. They can be solved into water. B. They can change shapes.
C. They only work in liquid. D. They feel much softer.

33. What aspect of the invention is mainly talked about in paragraph 3?

- A. Its shape. B. Its function. C. Its structure. D. Its working principle.

34. What does the underlined word “clump” mean in paragraph 3?

- A. Subscribe. B. Drag. C. Gather. D. Remove.

35. What can we infer from Steager's words?

- A. A good beginning is half done.
B. The first step is always the hardest.
C. Engineering can be applied to every field.
D. The invention still needs them to put more efforts.

第二节(共5小题;每小题2分,满分10分)

根据短文内容,从短文后的选项中选出能填入空白处的最佳选项。选项中有两项为多余选项。

Boating Safety Tips You Need to Know

There's nothing quite like spending the day on your boat with family and friends. Just be sure safety is the most important in your mind.

Be prepared with a boat safety kit(成套工具). 36 Your boat safety kit should be kept on board no matter what the size of your boat is.

Bring the proper life jackets. Life jackets do more than simply keep you floating. Many are designed to turn an drowning person face up. By law, all boats must have a U.S. Coast Guard -approved life jacket for each person on board. Some states also require children to wear life jackets at all times. 37

Check the weather beforehand. Warm, sunny days are suitable for boating, but you can't always predict when a storm will roll in. 38 And even if it's a warm spring day, the water could instead reflect winter temperatures. In the event that your boat overturns or you and your passengers get wet, make sure to seek help and get dry.

39 One of the most important things you need to know before setting out on the water is the maximum number of people and maximum amount of weight that your boat can safely handle. Not only is this a very important safety concern, it's also the law. Federal Law requires that all powerboats less than twenty feet in length need to carry this information in the form of a Capacity Plate.

Use common sense on the water. 40 It's important to use common sense, such as staying alert(警觉) at all times, operating at a safe speed and ensuring that passengers stay safely.

- A. Take a boating safely course.
- B. Don't overload the boat with people or equipment.
- C. Make sure you know all the rules and your responsibilities.
- D. Choose a life jacket that is right for your height and weight.
- E. Rules on the water aren't much more different than rules on the road.
- F. Suddenly changing wind and water are signs of an approaching storm.
- G. You can't always predict an emergency, so be prepared for any situation.

第三部分语言知识运用 (共两节,满分 45 分)

第一节(共 20 小题;每小题 1.5 分,满分 30 分)

阅读下面短文,从短文后各题所给的 A、B、C、D 四个选项中,选出可以填入空白处的最佳选项。

Most schools are trying to create inclusive environments for everyone. Fourth grade teacher Kari takes that effort⁴¹, so when she noticed students struggling to communicate with Leisa, a worker at school cafeteria, she decided to do something to ⁴²

Leisa has 43 problems, so students used to just point at the ⁴⁴ they wanted. Not only that, but no one could offer Leisa a simple ⁴⁵ like "good morning" or say "thank you" in sign

language.

Kari once 46 American Sign Language, so she decided to 47 her students a few words to make ordering lunch 48, along with making Leisa feel like the well – loved 49 of the community that she is.

When headmaster Dr. Janet heard about Kari's lessons, she decided to 50 Disability Awareness Month by teaching the entire school how to 51! As a result, it was so popular that they decided to keep it 52 year-round.

One student says being 53 to speak with Leisa makes her feel emotional and we're happy to hear that Leisa is feeling so loved and 54 at her work!

Kari is 55 that her idea to teach ASL is paying off for everyone at school. She hopes that these 56 will stay with her kids forever, and she's not just 57 the ins and outs of ASL.

“Whatever is learned at a young age, it is something that will 58 you,” Kari said, “and I think it's good for them to understand that all of us are 59. We should focus on what others can do instead of focusing on their 60.”

- | | | | |
|-------------------|----------------|------------------|------------------|
| 41. A. secretly | B. seriously | C. easily | D. personally |
| 42. A. cover | B. rescue | C. apologize | D. help |
| 43. A. hearing | B. walking | C. understanding | D. spelling |
| 44. A. toys | B. pens | C. foods | D. books |
| 45. A. excuse | B. hug | C. act | D. greeting |
| 46. A. learned | B. discovered | C. consulted | D. analyzed |
| 47. A. read | B. teach | C. find | D. send |
| 48. A. cheaper | B. smarter | C. easier | D. quicker |
| 49. A. teacher | B. part | C. leader | D. pupil |
| 50. A. celebrate | B. stop | C. share | D. record |
| 51. A. sigh | B. cook | C. perform | D. sign |
| 52. A. going | B. tracking | C. changing | D. working |
| 53. A. able | B. afraid | C. ready | D. curious |
| 54. A. surrounded | B. protected | C. included | D. sponsored |
| 55. A. anxious | B. thrilled | C. regretful | D. lucky |
| 56. A. languages | B. communities | C. lessons | D. classmates |
| 57. A. digging in | B. making up | C. agreeing with | D. talking about |
| 58. A. stick with | B. depend on | C. reflect on | D. apply to |
| 59. A. grateful | B. different | C. suitable | D. ambitious |
| 60. A. failure | B. mistake | C. priority | D. disability |

第二节(共 10 小题;每小题 1.5 分,满分 15 分)

阅读下面短文, 在空白处填入 1 个适当的单词或括号内单词的正确形式。

Sports tourism gains popularity among Chinese

A total of 79.3 percent of Chinese people have taken part in sports tourism

(indicate) this new form of recreation is gaining popularity62 _____ (especial) among the younger generation, a recent survey has showed.

The survey, 63 _____ (conduct) by China Youth Daily, surveyed 2 ,004 people born between the 1960s and the 2000s, among 64 _____ 51 percent were born in the 1980s. In December 2016, the country's top tourism and sports administrations jointly issued guidelines 65 _____ (develop) sports tourism. There have been more than 100 sports - themed tourist destinations and 100 quality events by now.

"The 'Healthy China 2030' scheme 66 _____ (raise) people's awareness of sports and health since it was initiated in 2016, said Lu Changbao, vice - dean of the economy and management college at Fuzhou University. "From an individual perspective, 67 _____ their living standards improving, Chinese people increasingly recognize the importance of health. As a fun way of improving their health, sports tourism is a good 68 _____ (choose) for them," Lu added.

According to Lu, sports tourism has numerous 69 _____ (advantage). By combining sports and tourism, it can benefit tourists both mentally and physically. In addition, tourists can enjoy more adventurous 70 _____ personalized tours that standard tourism services are not able to offer.

第四部分写作(共两节 ,满分 35 分)

第一节短文改错(共 10 小题;每小题 1 分,满分 10 分)

假定英语课上老师要求同桌之间交换修改作文,请你修改你同桌写的以下作文。文中共有 10 处语言错误,每句中最多有两处。每处错误仅涉及一个单词的增加、删除或修改。来源:高三答案公众号。

增加:在缺词处加一个漏字符号(∧),并在其下面写出该加的词。

删除:把多余的词用斜线(\)划掉。

修改:在错的词下划一横线,并在该词下面写出修改后的词。

注意:1.每处错误及其修改均仅限一词;

2.只允许修改 10 处,多者(从第 11 处起)不计分。

My hobby is reading. I love reading very much that wherever I will go, you can always find a book in my bag. You may wonder why reading is so appealed to me. Actually, the reason lie in my parents' influence. My parents are teachers, and all of them love reading. When at the early age, I just read picture books by fun. But my parents would ask me retell the story to them. And when listening, they would ask questions to show their interest, which great inspired me. Under their guidance, I gradually mastered many reading skill and benefited a lot from reading.

第二节书面表达(满分 25 分)

假定某英文报正在进行以 My Dream University 为题的征文活动,请你写一篇短文投稿。

内容包括:

1.介绍理想的学校; 2.讲述喜欢的原因; 3.表达自己的决心。

注意:

- 1.词数 100 左右;
- 2.可以适当增加细节,以使行文连贯。

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