

Article title: Evaluation of Google Bard on Vietna mese High School Biology Examination

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**Preprint statement:** This article is a preprint and has not been peer-reviewed, under consideration and submitted to ScienceOpen Preprints for open peer review.

Links to data: https://github.com/Xdao85/VNHSGE

DOI: 10.14293/PR2199.000327.v1

Preprint first posted online: 25 August 2023

Keywords: ChatGPT, BingChat, Bard, large language model

## **Evaluation of Google Bard on Vietnamese High School Biology Examination**

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Abstract: This paper presents an evaluation of the performance of Google Bard on the biology test of the Vietnamese National High School Graduation Examination (VNHSGE). The study aims to assess the accuracy and effectiveness of Google Bard in solving biology problems commonly encountered in the Vietnamese curriculum. To facilitate the evaluation, the VNHSGE dataset was translated from Vietnamese to English, as Google Bard currently lacks support for the Vietnamese language. The findings reveal that Google Bard achieved a performance rate of 49.5%, trailing behind competing models such as ChatGPT and BingChat, which achieved relatively higher scores of 58% and 69%, respectively. Notably, the translation process from Vietnamese to English might have impacted Bard's performance. Therefore, it is not recommended for Vietnamese students to solely depend on Google Bard for solving biology problems, especially if the Vietnamese language is not supported. Students should consider using language models explicitly designed for biology, such as ChatGPT or BingChat.

**Keywords**: ChatGPT, Bing Chat, Bard, biology education, large language model.

#### I. Introduction

As artificial intelligence (AI) continues to advance, its application in education has gained significant attention. Google Bard, a language model developed by Google, has been proposed as a tool for assisting students in solving problems related to various subjects. This paper focuses on evaluating the performance of Google Bard in the context of the VNHSGE biology test. The primary objective is to determine whether Google Bard can accurately and effectively address the biology problems commonly encountered in the Vietnamese curriculum.

In their work, Thanh et al. [1] introduced an online learning platform featuring a Vietnamese Virtual Assistant, designed to aid educators in conducting lectures and evaluating students. In a separate study, Quy et al. [2] presented an approach involving AIgenerated lecture materials. These materials take the form of slide presentations in PDF format, accompanied by synthesized speech and simulated facial expressions of the instructor, all derived from textual content.

Trang et al. [3] constructed a chatbot utilizing the Rasa framework and introduced an approach employing a tailored pipeline for the NLU model. Their approach incorporated pre-trained language models, namely FastText and BERT, while also implementing a customized tokenizer for the pipeline. The utilization of pre-trained language models in the NLU model demonstrated superior outcomes in comparison to training from scratch. In a separate study, Trang et al. [4] devised a Vietnamese chatbot centered around a

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seq2seq model bolstered by an attention mechanism. This model, created using a limited dataset, exhibited the capability to formulate responses for users. Nevertheless, further enhancements are required to refine the generated responses and attain more meaningful conversational interactions.

Hana et al. [5], [6], [7], [8], [9] embarked on a series of comprehensive investigations aimed at unraveling the multifaceted role of ChatGPT within the context of Vietnamese education. Through their meticulous studies, they discerned an array of potential advantages that ChatGPT could bestow upon administrators, educators, and students, fostering innovation and enrichment within the educational landscape.

Quy et al. [10], [11], [12] meticulously evaluated the performance of ChatGPT and Bing Chat in the context of the VNHSGE, encompassing a wide range of subjects, including mathematics [13], literature, English [14], physics [15], chemistry [16], biology, history, geography, and civic education [11]. The outcomes of their comprehensive investigations reveal a remarkable level of proficiency displayed by both ChatGPT and Bing Chat across the diverse spectrum of the VNHSGE Examination, attaining an average score ranging from 6 to 7 for both natural and social science combinations ([11], [12]). Notably, while Bing Chat excels over ChatGPT in the majority of subjects, it encounters stiff competition only in the realm of literature.

In [17], Quy et al. conducted an in-depth assessment of the performance of Large Language Models (LLMs) using the VNHSGE English dataset [10]. The results obtained from their investigation unveiled that Bing Chat exhibited the most impressive performance, achieving a notable score of 92.4%. Following closely, Bard garnered a commendable

86%, while ChatGPT secured 79.2%. This collection of outcomes strongly indicates that Bing Chat surpasses ChatGPT as a more efficacious language model specifically tailored to the demands of the VNHSGE dataset. The authors' contributions in this regard are of significant value, offering crucial insights into the capabilities of LLMs in the context of the VNHSGE dataset. These insights hold the potential to drive enhancements in the formulation and training of LLMs tailored for educational applications. It is imperative, however, to acknowledge the rigorous nature of the VNHSGE examination, where even the highest-performing language models exhibit imperfections. As such, further exploratory endeavors are warranted to advance the efficacy of LLMs in navigating the intricacies of the VNHSGE and similar challenging examinations

Google Bard, a substantial language model renowned for its versatility across diverse tasks, has garnered attention for its efficacy. Nevertheless, its competence in tackling the biology test within the framework of the VNHSGE examination remains relatively unexplored. This paper undertakes the task of meticulously appraising the proficiency of Google Bard when applied to the realm of Vietnamese biological education. The principal objective is to assess Google Bard's performance on the biology segment of the VNHSGE examination. To fulfill this goal, the paper delineates a comprehensive methodology specifically designed for evaluating Google Bard's efficacy within the context of the VNHSGE examination. The paper culminates with a comprehensive examination of the evaluation results, followed by an analysis of their implications, thus contributing insights into the potential utility of Google Bard in the domain of biology education.

#### **II. Methods**

To assess the effectiveness of Google Bard, the VNHSGE Vietnamese dataset [10] consisting of biology questions from the VNHSGE was selected. However, since Google Bard lacks support for the Vietnamese language, the dataset was translated into English to ensure compatibility. Google Bard was then employed to solve the translated biology questions. The performance of each model was measured based on its ability to provide correct answers.

#### A. Dataset

Within the confines of this paper, we leverage the VNHSGE dataset [10], a compilation curated from the Vietnamese National High School Graduation Examinations and analogous assessments. The focus of our scrutiny is directed towards the assessment of the VNHSGE biology dataset, encompassing a collection of 200 multiple-choice questions.

#### **B.** Prompt



#### Figure 1. Prompt to Google Bard.

Figure 1 elucidates the sequential progression encompassing the interaction with Google Bard. Commencing the process, the VNHSGE dataset [10] originally in Vietnamese is subjected to translation into English utilizing the Google Translate API. Subsequently, the English-rendered questions from the VNHSGE dataset are presented as prompts to the Google Translate API<sup>3</sup>. As the final step, a Python package is harnessed to facilitate the retrieval of Google Bard's response, achieved through the value assigned to the cookie<sup>4</sup>.

#### C. Grading

To assess the efficacy of Google Bard in furnishing answers, a meticulous assessment was carried out by juxtaposing its responses against the accurate solutions, commonly referred to as the ground truth. Employing a binary grading system, the evaluation procedure segregated Google Bard's answers into two distinct categories: correct and incorrect.

#### **D.** Limitations

This study has a notable limitation, which is the translation of the Vietnamese dataset to English. This process may have introduced inaccuracies in the questions and affected the models' performance. In future research, it would be valuable to evaluate Google Bard's performance with native Vietnamese language support. Additionally, the study could be extended to include more diverse datasets and subject areas to obtain a comprehensive understanding of the model's capabilities.

#### **III. Results**

#### A. Performance

Table 1 shows the performance of Google Bard, ChatGPT, and Bing Chat. The results of the evaluation revealed that Google Bard achieved a performance rate of 49.5% in solving the translated biology questions. This performance lagged behind both ChatGPT and BingChat, which achieved scores of 58% and 69%, respectively.

<sup>&</sup>lt;sup>3</sup> Google Translate API for Python, googletrans 4.0.0rc1

<sup>&</sup>lt;sup>4</sup> https://github.com/dsdanielpark/Bard-API

|      | ChatGPT [11] | Bing Chat [12] | Bard |
|------|--------------|----------------|------|
| 2019 | 60           | 67.5           | 55   |
| 2020 | 60           | 72.5           | 45   |
| 2021 | 52.5         | 67.5           | 45   |
| 2022 | 57.5         | 72.5           | 47.5 |
| 2023 | 60           | 65             | 55   |
| AVG  | 58           | 69             | 49.5 |

Table 1. Performance (%)

Figure 2 illustrates a comprehensive juxtaposition of the performance levels attained by ChatGPT, Bing Chat, and Bard throughout the VNHSGE Examination's biology test spanning the years 2019 to 2023. The outcomes manifest a discernible range in performance disparities, delineating a spectrum from 5% to 27.5%. This discrepancy fluctuates across the years, reaching its pinnacle at 27.5% in 2020, while registering its nadir at 5% in 2023.





Figure 3 visually encapsulates the consistency exhibited by LLMs in their responses to the biology test within the VNHSGE examination. The data reveals that Google Bard displays a comparatively lower level of stability in its responses, contrasting with the more stable performance observed in ChatGPT and Bing Chat.

The observed instability and inferior performance of Google Bard in tackling biology problems could potentially stem from the translation procedure undertaken from Vietnamese to English. Nuances inherent to language and the intricacies of problemsolving approaches embedded within the Vietnamese curriculum might not have been faithfully conveyed during translation. As a consequence, Google Bard may have furnished erroneous or insufficient responses to certain queries.

To conduct a more in-depth exploration of Google Bard's performance, a direct evaluation using the original VNHSGE Vietnamese dataset becomes imperative. Such an approach would permit an unadulterated assessment of its performance, devoid of any confounding influences arising from the translation process.



Figure 3. Stabilities of LLMs response.B. Google Bard and Vietnamese students

Table 2 displays the scores of LLMs on the biology test of the VNHSGE examination, as well as the performance of Vietnamese students on the same test. The results show that Bard's score is similar to the Vietnamese students (AVS, MVS).

Table 2. Score

|      | ChatGPT<br>[11] | BingChat<br>[12] | Bard | AVS  | MVS  |
|------|-----------------|------------------|------|------|------|
| 2019 | 6               | 6.75             | 5.5  | 4.68 | 4.5  |
| 2020 | 6               | 7.25             | 4.5  | 5.6  | 5.25 |
| 2021 | 5.25            | 6.75             | 4.5  | 5.51 | 5.25 |
| 2022 | 5.75            | 7.25             | 4.75 | 5.05 | 4.5  |
| 2023 | 6               | 6.5              | 5.5  | 6.39 | 6.5  |

Figure 4 visually delineates the comparative evaluation of scores achieved by the three LLMs in contrast to the performance of Vietnamese students during the biology test within the VNHSGE Examination. The outcomes gleaned from the figure indicate that Bard attains an average score of 4.92, whereas ChatGPT and BingChat attain scores of 5.8 and 6.9, correspondingly. These observations lead to the inference that, in its present state, Bard might not be deemed an optimal tool for facilitating biology education among Vietnamese high school students, particularly when lacking support for the Vietnamese language. However, the outcomes underscore the potential of all three LLMs to serve as effective educational support tools within the domain of biology education in the Vietnamese context.



# Figure 4. Score comparison of LLMs and Vietnamese students in years.

#### **IV. Discussion**

The comparative analysis of Google Bard's performance indicates that it might not be the most suitable tool for solving biology problems in the Vietnamese curriculum, especially when the Vietnamese language is not supported. In this section, we delve into the capabilities of Google Bard in supporting biology-related inquiries. Recognizing several compelling factors, we emphasize that the current juncture does not warrant Vietnamese students' complete reliance on Google Bard for their biology problem-solving endeavors. The following aspects underscore the rationale for this caution:

Language Limitations: Google Bard currently lacks support for the Vietnamese language. Consequently, Vietnamese students would be compelled to translate their biology queries into English prior to seeking assistance from Bard. This translation process introduces the potential for inaccuracies, impeding Bard's capacity to furnish precise responses.

Performance Disparity: In comparison to other LLMs, Bard's performance on the biology segment of the VNHSGE examination appears less robust. This divergence implies that Bard's effectiveness in resolving biology problems falls short when compared to its LLM counterparts.

Response Consistency: Bard's responses to biology queries demonstrate a lower degree of stability in contrast to other LLMs. This susceptibility increases the likelihood of Bard providing answers that are either incorrect or incomplete when tackling biology-related challenges.

Considering the cumulative evidence, it is currently advisable for Vietnamese students to exercise caution in exclusively relying on Google Bard for their biology problem-solving requirements. It is noteworthy, however, that Google Bard remains a work in progress, and there exists potential for enhancements in its performance over time. As Bard undergoes further development, the prospect of its improved efficacy in the realm of biology education remains a possibility.

#### V. Conclusion

In conclusion, this paper presents an evaluation of Google Bard's performance on the VNHSGE biology test. The results indicate that Google Bard achieved a performance rate of 49.5%, falling behind competing models ChatGPT and BingChat. The study highlights the potential impact of translation on performance and suggests that students should consider using specialized subject-specific language models, such as ChatGPT or BingChat, for more accurate and effective problem-solving in biology. Further research is needed to explore the applicability of Google Bard when supported in native languages and across a broader range of subject areas.

#### References

- T. M. T. Nguyen, T. H. Diep, B. B. Ngo, N. B. Le, and X. Q. Dao, "Design of Online Learning Platform with Vietnamese Virtual Assistant," in ACM International Conference Proceeding Series, Feb. 2021, pp. 51–57, doi: 10.1145/3460179.3460188.
- [2] X. Q. Dao, N. B. Le, and T. M. T. Nguyen, "AI-Powered MOOCs: Video Lecture Generation," ACM Int. Conf. Proceeding Ser., pp. 95–102, Mar. 2021, doi: 10.1145/3459212.3459227.
- [3] T. N. T. Mai and S. Maxim, "Enhancing Rasa Nlu Model For Vietnamese Chatbot," Int. J. Open Inf. Technol., vol. 9, no. 1, 2021, Accessed: Jun. 29, 2023. [Online]. Available: https://cyberleninka.ru/article/n/enhancing-rasa-nlu-model-for-vietnamese-chatbot.
- [4] T. Nguyen and M. Shcherbakov, "A neural network based Vietnamese chatbot," Proc. 2018 Int. Conf. Syst. Model. Adv. Res. Trends, SMART 2018, pp. 147–149, Nov. 2018, doi: 10.1109/SYSMART.2018.8746962.
- [5] H. Truong, "ChatGPT in Education A Global and Vietnamese Research Overview," EdArXiv. June 21. edarxiv.org/r4uhd, 2023, doi: 10.35542/OSF.IO/R4UHD.
- [6] H. T. Cao, C. B. Huynh, and L. Cao, "Integrating ChatGPT into Online Education System in Vietnam: Opportunities and Challenges," *EdArXiv*, 2023, doi: 10.35542/OSF.IO/HQYUT.
- [7] H. Trương, P. Nguyễn, L. Cao, T. Nguyễn, and P. Nguyễn, "Role of ChatGPT in Vietnamese Education," EdArXiv, 2023, doi: 10.35542/OSF.IO/52SMV.
- [8] N. Tipayavaravan, Y. Sirichokcharoenkun, and L. Cao, "ChatGPT: A New Tool for English Language Teaching and Learning at Vietnamese High Schools," *EdArXiv. 8 July 2023. edarxiv.org/m7k4y*, 2023, doi: 10.35542/OSF.IO/M7K4Y.
- [9] P. Bruneau, J. Wang, L. Cao, and H. Trương, "The Potential of ChatGPT to Enhance Physics Education in Vietnamese High Schools," *EdArXiv. July 12. edarxiv.org/36qw9*, 2023, doi: 10.35542/OSF.IO/36QW9.
- [10]X.-Q. Dao et al., "VNHSGE: VietNamese High School Graduation Examination Dataset for Large Language Models," arXiv Prepr. arXiv2305.12199, May 2023, doi: 10.48550/arXiv.2305.12199.
- [11]X.-Q. Dao, N.-B. Le, X.-D. Phan, and B.-B. Ngo, "Can ChatGPT pass the Vietnamese National High School Graduation Examination?," arXiv Prepr. arXiv2306.09170, Jun. 2023, doi: 10.48550/arXiv.2306.09170.
- [12]X.-Q. Dao and N.-B. Le, "ChatGPT is Good but Bing Chat is Better for Vietnamese Students," arXiv Prepr. arXiv2307.08272, Jul. 2023, doi: 10.48550/arXiv.2307.08272.
- [13]X.-Q. Dao and N.-B. Le, "Investigating the Effectiveness of ChatGPT in Mathematical Reasoning and Problem Solving: Evidence from the Vietnamese National High School Graduation Examination," arXiv Prepr. arXiv2306.06331, Jun. 2023, doi: 10.48550/arXiv.2306.06331.
- [14]X.-Q. Dao, N.-B. Le, X.-D. Phan, and B.-B. Ngo, "An Evaluation of ChatGPT's Proficiency in English Language Testing of The Vietnamese National High School Graduation Examination," SSRN Electron. J., Jun. 2023, doi: 10.2139/ssrn.4473369.
- [15]X.-Q. Dao, N.-B. Le, X.-D. Phan, B.-B. Ngo, and T.-D. Vo, "Evaluation of ChatGPT and Microsoft Bing AI Chat Performances on Physics Exams of Vietnamese National High School Graduation Examination," arXiv Prepr. arXiv2306.04538, Jun. 2023, doi: 10.48550/arXiv.2306.04538.
- [16]X.-Q. Dao, N.-B. Le, T.-D. Vo, B.-B. Ngo, and X.-D. Phan, "LLMs' Capabilities at the High School Level in Chemistry: Cases of ChatGPT and Microsoft Bing Chat," *ChemRxiv. Cambridge Cambridge Open Engag.* 2023, Jun. 2023, doi: 10.26434/CHEMRXIV-2023-KXXPD.
- [17]X.-Q. Dao, "Performance Comparison of Large Language Models on VNHSGE English Dataset: OpenAI ChatGPT, Microsoft Bing Chat, and Google Bard," arXiv:2307.02288, Jul. 2023, doi: 10.48550/arXiv.2307.02288.

### Appendix

| Appropriate of DNA molecules that brings encryption<br>information for a polyspetide or a molecule called<br>A. Protein.         The answer is "10 gene".         Correct           B. enzymes.         Correct         Agene is a segment of DNA that codes for a specific protein. The<br>sequence of the protein. The amino acids sequence that determines<br>the structures and function of the protein.         Correct           D gene         A polyspetide is a long chain of antion acids. Forteins are made up<br>of one or more polyspetides or a molecules that brings encryption<br>information for a polyspetide or a molecule is called a gene.         Correct           A. B. AB and O there are 3 alleles are '1's, '1'B, '1'O. The<br>all the squence of the protein.         The answer is "10 all the proteins that cally be<br>demiced requency of allele 1'P is<br>the frequency of allele 1'P is<br>to the frequency of allele 1'P is 1' 0.3 - 0.5 - 0.2.         Correct           Which of the following statements about the competitive<br>relationship between individuals in the biological<br>population is wrong?         There sum field there is 0.2.         Correct           Management Competitive relationship, the individuals in<br>the population between individuals in the population compete for food,<br>accommedition, the mather of individuals in<br>the population is wrong?         Correct individuals in the population sore, and propriate level.         Correct           Therefore, the individuals in the population sore, the individuals in the population sore, and propriate level.         Sore statement A: The fince competitive relationship, t   | Prompt/ Question   | Answer   | Grading |
|--|--|--|---------|
| information for a polypeptide or a molecule called<br>A. Protein.<br>D. endition<br>D. gene<br>A prote is a segment of DNA that codes for a specific protein. The<br>sequence of nucleotides in a gene determines the autino acid<br>sequence of nucleotides in a gene determines the autino acid<br>sequence of nucleotides in a gene determines the autino acid<br>sequence of nucleotides in a gene determines the autino acid<br>sequence of the protein. The<br>sequence of the protein. The autino acid<br>sequence of the protein. The<br>sequence of the protein. The sequence of the protein. The<br>sequence of the protein. The sequence of the pro | A paragraph of DNA molecules that brings encryption  | The answer is <b>**D</b> . gene**.   | Correct |
| A. Protein.       Protein.         E. enzymes.       Sequence of DNA that codes for a specific protein. The sequence of nucleotide in a gene determines the atimo acid sequence then determines the sequence of nucleotide in a gene determines the atimo acid.         B. gene       Sequence of nucleotide in a gene determines the atimo acid.         B. gene is a segment of DNA molecules that brings encryption information for a polyceptide is a long chain of mino acids. Proteins are made up of one probability of a nucleul is called a gene.       Correct         In the human population, the gene specifies blood type.       Polid is not a biological term.       Therefore, the paragraph of DNA molecules that brings encryption information for a polyceptide or a nucleul is called a gene.       Correct         The answer is <b>%A 0.25</b> .       Correct       The answer is <b>%A 0.25</b> .       Correct         B. AB and O there are 3 alleles are 'n, 'PB, 'PO' on the allele frequency of allele 'Po is 1 - 0.3 - 0.2 = 0.2.       Here's the math:       * Allele frequency 'PA = 0.3 * Allele frequency iPA = 0.4 * Allele frequency iPA = 0.5 * 0.2.       Correct         Which of the following statements about the competitive relationship between individuals in the biological population sore polyce populations. For example, plants compete for food, accommodation, lighting,       Correct         C. Competition between individuals in the population.       So the statement that competition between individuals in the population betwe   | information for a polypeptide or a molecule called   |  |         |
| B: explore.       C. Polid.         D: gene       sequence of nucleotides in a gene determines the attentions         D: gene       sequence of nucleotides in a gene determines the attentions         D: gene       A polyperide is a long chain of anno acids. Proteins are made up of our or polyperides. Enzymes are proteins that catalyze chemical reactions.         Poild is not a biological term.       Therefore, the paragraph of DNA molecules that brings encryption information for a polyperide or a molecule is called a gene.       Correct         In the human population, the gene specifies blood type.       The answer is #20.02**       Correct         The same of the allele frequency of allele P is is -0.5 - 0.2.       The same of the allele frequency PA = 0.3 + 0.5 - 0.2.       Correct         B. 0.6.       C. 0.4.       D. 0.5.       * Allele frequency PA = 0.3 + 0.5 - 0.2.       Correct         Which of the following statements about the competitive the requency of allele P is 0.5.       * Allele frequency PA = 0.3 + 0.5 + 10 - 1 + 10 - 1 + 10 - 1 - 1 + 10 - 1 - 1 + 10 - 0 - 1 - 1 + 10 - 0 - 1 - 1 - 1 - 0 - 0 - 3 - 0 - 2 = 1 - 0 - 1 + 10 - 0 - 1 - 1 + 10 - 0 - 1 - 1 - 1 - 0 - 0 - 3 - 0 - 2 = 1 - 0 - 1 + 10 - 0 - 1 - 1 - 1 - 0 - 0 - 3 - 0 - 2 = 1 - 0 - 1 + 10 - 0 - 1 + 10 - 0 - 1 - 1 - 1 - 0 - 0 - 1 - 1 - 1   | A. Protein.  | A gene is a segment of DNA that codes for a specific protein. The  |         |
| Control       Sequence on the protein. In a number of individuals in the protein and sequence of the protein.         Dependence       A polypeptide is a long chain of animo axis. Forteins are made up of one or more polypeptides. Enzymes are proteins that catalyze chemical reactions.       Polki is not a biological term.         Therefore, the paragraph of DNA molecules that brings encryption information for a polypeptide or a molecule is called a gene.       Correct         A B, AB and O there are 3 alleles are 1^n, 1/B, 1/O'D.       The answer is *A 0.25*6.       Correct         The the frequency of A is 0.3.71th frequency of allele 1'O is 1.0.3 - 0.5 - 0.2.       Here's the math:       * Allele frequency is *A 0.3**6.         B, 0.6.       C. 0.4.       D. 0.5.       * Allele frequency (JA = 0.3 + 0.5 + 1/O - 1 + 1/O = 1 - 0.3 - 0.5 = 0.2.       Correct         Which of the following statements about the competitive relationship between individuals in the biological population is wrong?       * Allele frequency (JA = 0.3 + 0.5 + 1/O - 1 + 1/O = 1 - 0.3 - 0.5 = 0.2.       Correct         Which of the following statements about the competitive relationship between individuals in the population between individuals in the population between individuals in the population secone propeed.       Correct         D. Thanks to the competition relationship, the individuals in the population between individuals in the population b   | B. enzymes.  | sequence of nucleotides in a gene determines the amino acid  |         |
| by park       mile structure and halk tool of the produit.         by park       mile structure and halk tool of the produit.         A polypeptide is a long what of mino acids. Proteins are made up of one or more polypeptides. Enzymes are proteins that catalyze chemical reactions.       Polid is not a biological term.         The answer is "A Data a biological term.       The answer is "A Data a Data biological term.       Correct         In the human population, the gene specifies blood type A, B, AB and O there are 3 alleles are 'ta, 'PB, PO.The allele frequency of allele P'o is is A.Data       The answer is "A Data       Correct         B. 0.6.       Co.t.4.       D. 0.5.       The sams of the allele frequency PA = 0.3       Correct         Which of the following statements about the competition to the population can occur in the population can exerve in dividuals in the biological particle between individuals in the population server individuals in the population server individuals in the population between individuals in the population only cocurs in animal populations. For example plants complete for and nurients. Animals complete for food, mates, and territory.       So the statement that competition between individuals in the population only cocurs in animal population compete for food, mates, and territory.       So the statement is correct. How works here and population compete for food, mates, and territory.         Correct       So the statement is correct. Individuals in the population only cocurs in animal populations is wrong. The other statements B.The individuals in the population compete for food, mates, and is in the population between individuals in the popu  | D. gong  | sequence of the protein. The amino acid sequence then determines   |         |
| A polycepide is a long chain of amino acids. Proteins are mulae up<br>of one or more polypepides. Enzymes are proteins that catalyze<br>chemical reactions.         Polid is not a biological term.           In the human population, the gene specifies blood type<br>A, B, AB and O there are 3 alleles are 'ha, 'PB, 'PC'. The<br>allele frequency ('A is 0.3)The frequency of allele I'o is<br><b>X</b> . 02.         The answer is <b>**A</b> . 0.2**.         Correct           0.05.         The sum of the allele frequency is 0.3 (The frequency of allele I'o is 1.0.3.0.5 = 0.2.         Correct           0.05.         The sum of the allele frequency is 0.3 + 0.5 + 1'O = 1         * 1.0 = 0.5           0.05.         * Allele frequency is 0.3 + 0.5 + 1'O = 1         * 1.0 = 0.2.           Which of the following statements about the competitive<br>relationship between individuals in the biological<br>population is wrong?         Therefore, the frequency of allele I'o is 0.2.         Correct           Therefore, the frequency of allele roy is 0.3 + 0.5 + 1'O = 1         * 1.0 = 0.2.         Correct           Competition between individuals in the biological<br>population is wrong?         So the statement is Aminual complete for food,<br>maintal apolitonic site wrong?         Correct           D. Thanks to the competition.         The streement that competition between individuals in the population<br>site individuals in the population and and plant populations is wrong. The other<br>statement as a correct.         The streement that competition relationship, the individuals<br>in the population between individuals in the population compete for food,<br>maintal and alter confinement as a numerece of i  | D. gene.   | the structure and function of the protein.   |         |
| Polid is not a biological term.         Therefore, the paragraph of DNA molecules that brings encryption<br>information for a polypeptide or a molecule is called a gene.         Correct           In the human population, the gene specifies blood type<br>A, B, AB and O there are 3 alleles are 1'a, 1'B, 1'O. The<br>allele frequency 1'A is 0.3. The frequency of allele 1'P is<br>0.5. Theoretically, the frequency of allele 1'P is<br>0.5. Theoretically, the frequency of allele 1'P is<br>0.5. 1         Correct           B. 0.6.<br>C. 0.4<br>D. 0.5.         + Allele frequency 1'A = 0.3<br>+ Allele frequency 1'A = 0.4<br>+ To all allee frequency 1'A = 0.4<br>+ Allele frequency 1'A = 0.4<br>+ All  |  | A polypeptide is a long chain of amino acids. Proteins are made up<br>of one or more polypeptides. Enzymes are proteins that catalyze<br>chemical reactions. |         |
| Therefore, the paragraph of DNA molecules that brings encryption<br>information for a polypeptide or a molecule is called a gene.         Correct           In the human population, the gene specifies blood type<br>A. B. AB and 0 there are 3 alleles are 1'a, 1'B, 1'O. The<br>allele frequency of allele 1'P is 1 - 0.3 - 0.5 = 0.2.         Correct           B. 0.6.         The sum of the allele frequencies of all three alleles must be 1, so<br>the frequency of allele 1'P is 1 - 0.3 - 0.5 = 0.2.         Correct           B. 0.6.         * Allele frequency of allele 1'P is 1 - 0.3 - 0.5 = 0.2.         Here's the math:         *           * Allele frequency PA = 0.3<br>* Allele frequency PA = 0.3<br>* Allele frequency PA = 0.3<br>* Allele frequency PA = 0.5<br>* Allele frequency PA = 0.5<br>* Allele frequency PA = 0.5 - 0.2.         Correct           Which of the following statements about the competitive<br>relationship between individuals in the biological<br>population is wrong?         The answer is C.         Correct is<br>correct in the biological<br>population is between individuals in the population.<br>So the statement that competition between individuals in the<br>population of use competitive relationship, the individuals<br>is maintained at an appropriate level.         So the statement that competition between individuals in the<br>population between individuals in the population.<br>So the statement that competitive relationship, the individuals<br>in the population compete for food,<br>accommodation. Lighting         So the statement:<br>* Statement B. The individuals in the population compete for food,<br>accommodation in the statement is also correct. Usen individuals compete for limited<br>resources, they may become aggressive towards each other. This<br>cant lead to conflict and even violence. <td< td=""><td></td><td>Polid is not a biological term.</td><td></td></td<>   |  | Polid is not a biological term.  |         |
| In the human population, the gene specifies blood type       The answer is **A.0.2**.       Correct         A, B, AB and O there are 3 alleles are 1x, 1P8 1/O. The alleles requency of allele 1P6 is 0.5. The sum of the allele frequency of allele P is 1 - 0.3 - 0.5 = 0.2.       Correct         A, 02       B. 0.6.       C. 0.4.       * Allele frequency of allele P is 1 - 0.3 - 0.5 = 0.2.       Here's the math:         * 0.5.       * Allele frequency of allele P is 1 - 0.3 - 0.5 = 0.2.       * Allele frequency P is - 0.5       * Allele frequency of allele P is 0.5.         * 0.5.       * Allele frequency of allele P is 0.5.       * Allele frequency O = 0.3       * Allele frequency P is 0.5.         * Mich of the following statements about the competitive relationship, the individuals in the biological population between individuals in the biological competition between individuals in the biological population between individuals in the biological population between individuals in the population can occur in biological population between individuals in the population potence.       So the statement is  |  | Therefore, the paragraph of DNA molecules that brings encryption information for a polypeptide or a molecule is called a gene.                               |         |
| A. B. AB and O there are 3 alleles are (Pa, PB, PO, The select PA is 0.5. The sum of the allele frequencies of all three alleles must be 1, so the frequency of allele Po is 1 - 0.3 - 0.5 = 0.2.         M.02         B. 0.6.         C. 0.4.         D. 0.5.         * Allele frequency of allele Po is 1 - 0.3 - 0.5 = 0.2.         Here's the math:         * Allele frequency PO = 7         * Total allele frequency PO = 7         * Total allele frequency PO = 7         * Total allele frequency O = 0.5         * Allele frequency PO = 7         * Total allele frequency of allele Po is 0.2.         Which of the following statements about the competitive relationship, between individuals in the biological population become opposed.         B. The individuals in the population compete for food, accommediation. lighting         Competition between individuals in the population only occurs in animal populations.         D. Thanks to the competition, the number of individuals in the population between individuals in the population between individuals in the population between individuals in the population become opposed.         D. Thanks to the competition, the number of individuals in the population become opposed.         D. Thanks to the competition, the number of individuals in the population become opposed.         B. The individuals in the population decome opposed.         D. Thanks to the competition, the number of individuals in the population become opposed. <td>In the human population, the gene specifies blood type</td> <td>The answer is **A. 0.2**.</td> <td>Correct</td>  | In the human population, the gene specifies blood type   | The answer is **A. 0.2**.  | Correct |
| allele frequency I^A is 0.3;The frequency of allele IPo is       The sum of the allele frequencies of all three alleles must be 1, so         b. 0.5.       The sum of the allele frequency of allele IPo is I - 0.3 - 0.5 = 0.2.         b. 0.6.       C. 0.4.         D. 0.5.       Here's the math:         * Alled       Frequency I^A = 0.3         * Alled frequency I^A = 0.3       * Allele frequency I^A = 0.3         * Alled frequency I^A = 0.3       * Allele frequency I^A = 0.3         * Ito allele frequency I^A = 0.3       * Allele frequency I^A = 0.3         * Ito allele frequency I^A = 0.3.       * Allele frequency I^A = 0.3         * Ito allele frequency I^A = 0.5.       * Therefore, the frequency of allele I'o is 0.2.         Which of the following statements about the competitive Ito the animal and path repotations. For example, plants compete for soulight, water, and nutrients. Animals compete for food, accommodation, lighting       Correction between individuals in the population only occurs in animal populations.         D. Thanks to the competition, the number of individuals is maintained at an appropriate level.       So the statement is correct.         * Statement 1: store exits on the population compete for food, accommedation, lighting       This statement is also correct. Individuals in the population compete for food, accommodation, lighting         This statement is also correct.       The individuals in the population compete for food, accommodation, lighting         Th  | A, B, AB and O there are 3 alleles are I^a, I^B, I^O.The   |  |         |
| B. 0.6.       C. 0.4.         D. 0.5.       * Allele frequency 1^A = 0.3         * Total allele frequency 1^A = 0.3   | allele frequency I^A is 0.3; The frequency of allele I^B is $0.5$ . Theoretically, the frequency of allele I^o is                        | The sum of the allele frequencies of all three alleles must be 1, so the frequency of allele I <sup><math>\circ</math></sup> o is 1 - 0.3 - 0.5 = 0.2.       |         |
| D. 0.5.       * Allele frequency (^A = 0.3<br>* Allele frequency (^A = 0.3)<br>* Allele frequency (^   | A. 0.2.<br>B. 0.6.<br>C. 0.4.  | Here's the math:   |         |
| <ul> <li>* Allele frequency I^D = 0.5</li> <li>* Allele frequency 0.3 + 0.5 + 1^O = 1</li> <li>* Total allel frequency 0.3 + 0.5 + 1^O = 1</li> <li>* Total allel frequency 0.3 + 0.5 + 1^O = 1</li> <li>* Total allel frequency 0.3 + 0.5 + 1^O = 1</li> <li>* Total allel frequency of allele 1'o is 0.2.</li> <li>Therefore, the frequency of allele 1'o is 0.2.</li> <li>The answer is C.</li> <li>Competition between individuals in the biological composed.</li> <li>B. The individuals in the population compete for food, accommodation, lighting</li> <li>Competition between individuals in the population</li> <li>D. Thanks to the competition, the number of individuals in the appropriate level.</li> <li>So the statement that competition between individuals in the populations is wrong. The other statements are all correct.</li> <li>Here is a brief explanation of each statement:</li> <li>* Statement A: The firere competitive relationship, the individuals in the population become opposed.</li> <li>This statement is correct. Men individuals in appropriate level.</li> <li>This statement is a brief explanation of each statement:</li> <li>* Statement are is a correct. Individuals in a population compete for food, accommodation, lighting</li> <li>This statement is a so correct. Individuals in a population compete for limited resources, they may become aggressive towards each other. This can lead to conflict and even violence.</li> <li>* Statement is a correct. Individuals in a population compete for food, accommodation, lighting</li> <li>This statement is also correct. Individuals in a population compete for food, accommodation, lighting</li> <li>This statement is also correct. Individuals in a population compete for food, accommodation, lighting</li> <li>The individuals in the population become expressite towards each other. This can lead to conflict and even violence.</li> <li>* Statement I: The individuals</li></ul>  | D. 0.5.  | * Allele frequency $I^A = 0.3$   |         |
| <ul> <li>* Allele frequency PO = ?</li> <li>* Total allele frequency = 0.3 + 0.5 + 1/O = 1</li> <li>* 1/O = 1 - 0.3 - 0.5 = 0.2</li> <li>* Total allele frequency = 0.3 + 0.5 + 1/O = 1</li> <li>* 1/O = 1 - 0.3 - 0.5 = 0.2</li> <li>Therefore, the frequency of allele 1/o is 0.2.</li> <li>The force competitive relationship, the individuals in the population is wrong?</li> <li>A. The force competitive relationship, the individuals in the population compete for dod, accommodation. lighting,</li> <li>C. competition between individuals in the population only occurs in animal populations.</li> <li>The answer is C.</li> <li>Competition between individuals in the population only occurs in animal populations is wrong. The other statements are all correct.</li> <li>So the statement that competitive relationship, the individuals in the population only occurs in animal populations is wrong. The other statements are all correct.</li> <li>We is a brief explanation of each statement:</li> <li>* Statement A: The fierce competitive relationship, the individuals in the population between opposed.</li> <li>This statement is correct. When individuals in a population compete for ford, accommodation, lighting,</li> <li>This statement B: The individuals in a population compete for all the resources, they may become aggressive towards each other. This can lead to conflict and even violence.</li> <li>* Statement B: The individuals in a population compete for all the resources they may become aggressive towards each other. This statement B: The individuals in a population previous. These resources here need to survive and reproduce. These resources here need to survive and reproduce. These resources here need to survive and reproduce. These resources here population when the population belows to regulate the size of a population. When the population belows to regulate the size of a population. When the population belows to all opposition of a codon is usually not s</li></ul>   |  | * Allele frequency $I^B = 0.5$   |         |
| * Total allele frequency = 0.3 + 0.5 + 1^O = 1         * PO = 1 - 0.3 - 0.5 = 0.2         Which of the following statements about the competitive relationship between individuals in the biological population is wrong?       Therefore, the frequency of allele 1^O is 0.2.         A. The ferce competitive relationship, the individuals in the population compete for food, accommodation, lighting,       Correct         C. Competition between individuals in the population on pete for food, accommodation, lighting,       So the statement that competition between individuals in the population only occurs in animal populations; so recample, plants compete for statement is an appropriate level.       So the statement that competition between individuals in the population only occurs in animal populations; so wrong. The other statements are all correct.         B. The individuals in the population only occurs in animal populations; so wrong. The other statement is a brief explanation of each statement:       * Statement A: The fierce competitive relationship, the individuals in the population become opposed.         D. Thanks to the competition between individuals in the population become opposed.       This statement is correct. When individuals compete for food, accommodation, lighting,         Statement B: The individuals in a population compete for food, accommodation, lighting,       * Statement B: The individuals in the population compete for food, accommodation, lighting,         When the population become opposed.       This statement is also correct. Individuals in a population compete for food, accommodation, lighting,         This statement Is B: The individ  |  | * Allele frequency $I^O = ?$   |         |
| Therefore, the frequency of allele 1% is 0.2.Therefore, the frequency of allele 1% is 0.2.Which of the following statements about the competitive<br>relationship between individuals in the biological<br>A. The fierce competitive relationship, the individuals in<br>the population become opposed.CorrectB. The individuals in the population<br>only occurs in animal populations.Competition between individuals in the<br>population only occurs in animal populations.Competition between individuals in the<br>population only occurs in animal populations.So the statement that competitive relationship, the other<br>statement are all correct.D. Thanks to the competition, the number of individuals<br>is maintained at an appropriate level.So the statement that competitive relationship, the individuals<br>in the population become opposed.<br>This statement is also become opposed.Here is a brief explanation of each statement:<br>* Statement 2:<br>* Statement is the competitive relationship, the individuals<br>in the population become opposed.<br>This statement is also correct. When individuals in a population compete for food,<br>accommodation, lighting<br>This statement is a population compete for food,<br>accommodation, lightingThe individuals in a population compete<br>for all the resources they need to survive and reproduce. These<br>resources can include food, water, shelter, mates, and territory.<br>* Statement D: Thanks to the competition helps to regulate the size<br>of a population size or competition increases. This can lead to<br>some individuals is or neproducing, which helps to keep the<br>population size in check.Indicates the coding of amino acids in the following<br>table:<br>Amino acid codon<br>Lue 5 xuu 3 '5 xuu 3 ';The correct answer is <b>**B.2**</b> Correct  |  | * Total allele frequency = 0.3 + 0.5 + I^O = 1<br>* I^O = 1 - 0.3 - 0.5 = 0.2  |         |
| Which of the following statements about the competitive relationship between individuals in the biological population swrong?       Correct         A. The fierce competitive relationship, the individuals in the population become opposed.       Correct         B. The individuals in the population compete for food, accommodation, lighting,       Competition between individuals in the population only occurs in animal populations. For example, plants compete for food, accommodation, lighting,       So the statement that competition between individuals in the population only occurs in animal populations. The other statements are all correct.         D. Thanks to the competition, the number of individuals is maintained at an appropriate level.       Here is a brief explanation of each statement:         * Statement A: The fierce competitive relationship, the individuals in the population become opposed.       This statement is correct. When individuals compete for limited resources, they may become aggressive towards each other. This can lead to conflict and even violence.         * Statement B: The individuals in the population compete for all the resources they may become aggressive towards each other. This can lead to conflict and even violence.         * Statement I: B: The individuals in the population compete for food, accommodation, lighting,       This statement is also correct. Individuals in a population compete for food, accommodation, lighting,         * Statement I: also correct. Competition helps to regulate the size of a population. When the population becomes too large, the resources they may competition increases. This can lead to some individuals dying or not reproducing, which helps to keep the population size i   |  | Therefore, the frequency of allele $I^{\circ}$ is 0.2.   |         |
| relationship       between individuals in the biological population is wrong?       Competition between individuals in the population compete for food, accommodation, lighting,         C. Competition between individuals in the population compete for food, accommodation, lighting,       Competition between individuals in the population and plant populations. For example, plants compete for sunlight, water, and nutrients. Animals compete for food, mates, and territory.         C. Competition between individuals in the population and populations.       So the statement that competition between individuals in the population only occurs in animal populations is wrong. The other statements are all correct.         D. Thanks to the competition, the number of individuals is maintained at an appropriate level.       So the statement that competition between individuals in the population of each statement:         * Statement A: The fierce competitive relationship, the individuals in the population become opposed.       This statement is correct. When individuals compete for food, accommodation, lighting,         This statement is also correct.       * Statement B: The individuals in a population compete for food, accommodation, lighting,         This statement is also correct.       * Statement D: Thanks to the competition helps to regulate the size of a population. When the population become so large, the resources and an appropriate level.         indicates the coding of amino acids in the following table:       The correct answer is <b>**B</b> . <b>2**</b> .         indicates the coding of amino acids in the following table:       The correct answer is <b>**B</b> . <b>2**</b> .   | Which of the following statements about the competitive  | The answer is C.   | Correct |
| the population become opposed.       an appropriate level.         B. The individuals in the population compete for food, accommodation, lighting,       c. Competition between individuals in the population only occurs in animal populations.         D. Thanks to the competition, the number of individuals is maintained at an appropriate level.       So the statement that competition between individuals in the population of each statement:         * Statement A: The fierce competitive relationship, the individuals in the population become opposed.       This statement is correct. When individuals compete for food, accommodation, lighting,         This statement I:       * Statement B: The individuals in the population compete for food, accommodation, lighting,         This statement is correct. When individuals in the population compete for food, accommodation, lighting,       This statement for food, water, shelter, mates, and territory.         * Statement B: The individuals in the population compete for food, accommodation, lighting,       This statement is also correct. Individuals in a population compete for food, accommodation, lighting,         This statement I: also correct. Competition helps to regulate the size of a population. When the population becomes too large, the resources become scare and competition, the number of individuals dying or not reproducing, which helps to keep the population size in check.         indicates the coding of amino acids in the following table:       The correct answer is <b>*B</b> .2**.       Correct         Amino acid codon       The correct assue the third position of a codon is usually to significant. F  | relationship between individuals in the biological<br>population is wrong?<br>A. The fierce competitive relationship, the individuals in | Competition between individuals in the population can occur in both animal and plant populations. For example, plants compete for                            |         |
| accommodation, lighting,       So the statement that competition between individuals in the population only occurs in animal populations.         D. Thanks to the competition, the number of individuals is maintained at an appropriate level.       So the statement that competition between individuals in the population only occurs in animal populations.         Here is a brief explanation of each statement:       * Statement A: The fierce competitive relationship, the individuals in the population become opposed.         This statement is correct. When individuals compete for limited resources, they may become aggressive towards each other. This can lead to conflict and even violence.       * Statement B: The individuals in the population compete for food, accommodation, lighting,         This statement is also correct. Individuals in a population compete for all the resources they need to survive and reproduce. These resources can include food, water, shelter, mates, and territory.       * Statement D: Thanks to the competition, the number of individuals is maintained at an appropriate level.         This statement to: Statement is also correct. Competition helps to regulate the size of a population. When the population becomes too large, the resources become scare and competition increases. This can lead to some individuals sing or not reproducing, which helps to keep the population size in check.         Indicates the coding of amino acids in the following table:       The correct answer is "*B.2**.       Correct         Amino acid codon Lue 5's'xu3';       Statement I is true because the third position of a codon is usually not significant. For example, the codons UUA, UUX, UUA, and  | the population become opposed.<br>B. The individuals in the population compete for food,   | sunlight, water, and nutrients. Animals compete for food, mates, and territory.  |         |
| only occurs in animal populations.<br>D. Thanks to the competition, the number of individuals<br>is maintained at an appropriate level.oppulation only occurs in animal populations is wrong. The other<br>statements are all correct.Here is a brief explanation of each statement:* Statement A: The fierce competitive relationship, the individuals<br>in the population become opposed.<br>This statement is correct. When individuals compete for limited<br>resources, they may become aggressive towards each other. This<br>can lead to conflict and even violence.<br>* Statement B: The individuals in the population compete<br>for all the resources they need to survive and reproduce. These<br>resources can include food, water, shelter, mates, and territory.<br>* Statement D: Thanks to the competition helps to regulate the size<br>of a population. When the population becomes too large, the<br>resources become scarce and competition increases. This can lead to<br>some individuals dying or not reproducing, which helps to keep the<br>population size in check.indicates the coding of amino acids in the following<br>table:<br>Amino acid codon<br>Lue 5'xuu3 ';'The correct answer is <b>**B.2**</b> .Correct  | C. Competition between individuals in the population   | So the statement that competition between individuals in the   |         |
| is maintained at an appropriate level.       Here is a brief explanation of each statement:         * Statement A: The fierce competitive relationship, the individuals in the population become opposed.       This statement is correct. When individuals compete for limited resources, they may become aggressive towards each other. This can lead to conflict and even violence.         * Statement B: The individuals in the population compete for food, accommodation, lighting,       This statement is also correct. Individuals in a population compete for all the resources they need to survive and reproduce. These resources can include food, water, shelter, mates, and territory.         * Statement I:       * Statement is also correct. Competition helps to regulate the size of a population. When the population increases. This can lead to some individuals dying or not reproducing, which helps to keep the population size in check.         indicates the coding of amino acids in the following table:       The correct answer is <b>**B. 2**.</b> Correct         Amino acid codon       Statement I is true because the third position of a codon is usually not significant. For example, the codons UUA, UUX, UUA, and       Statement I is true because the third position of a codon is usually  | only occurs in animal populations.<br>D. Thanks to the competition, the number of individuals  | population only occurs in animal populations is wrong. The other statements are all correct.   |         |
| * Statement A: The fierce competitive relationship, the individuals<br>in the population become opposed.<br>This statement is correct. When individuals compete for limited<br>resources, they may become aggressive towards each other. This<br>can lead to conflict and even violence.<br>* Statement B: The individuals in the population compete for food,<br>accommodation, lighting,<br>This statement is also correct. Individuals in a population compete<br>for all the resources they need to survive and reproduce. These<br>resources can include food, water, shelter, mates, and territory.<br>* Statement D: Thanks to the competition helps to regulate the size<br>of a population. When the population becomes too large, the<br>resources become scarce and competition increases. This can lead to<br>some individuals dying or not reproducing, which helps to keep the<br>population size in check.Correctindicates the coding of amino acids in the following<br>table:<br>Amino acid codon<br>Lue 5'xuu3 ';5'xuu3 ';The correct answer is <b>**B. 2**</b> .Correct   | is maintained at an appropriate level.   | Here is a brief explanation of each statement:   |         |
| <ul> <li>* Statement A: The here competitive relationship, the individuals in the population become opposed.</li> <li>This statement is correct. When individuals compete for limited resources, they may become aggressive towards each other. This can lead to conflict and even violence.</li> <li>* Statement B: The individuals in the population compete for food, accommodation, lighting,</li> <li>This statement is also correct. Individuals in a population compete for all the resources they need to survive and reproduce. These resources can include food, water, shelter, mates, and territory.</li> <li>* Statement D: Thanks to the competition, the number of individuals is maintained at an appropriate level.</li> <li>This statement is also correct. Competition helps to regulate the size of a population. When the population becomes too large, the resources become scarce and competition increases. This can lead to some individuals dying or not reproducing, which helps to keep the population size in check.</li> <li>indicates the coding of amino acids in the following table:</li> <li>Amino acid codon</li> <li>Lue 5'xuu3';5'xuu3';</li> </ul>  |  | * Classic and A. The Concernment's 1.1.1.1.1.1.1.1.1.1.1.1   |         |
| In this population become opposed.This statement is correct. When individuals compete for limited<br>resources, they may become aggressive towards each other. This<br>can lead to conflict and even violence.* Statement B: The individuals in the population compete for food,<br>accommodation, lighting,This statement B: The individuals in a population compete for food,<br>accommodation, lighting,This statement B: The individuals in a population compete<br>for all the resources they need to survive and reproduce. These<br>resources can include food, water, shelter, mates, and territory.* Statement D: Thanks to the competition, the number of<br>individuals is maintained at an appropriate level.This statement is also correct. Competition helps to regulate the size<br>of a population. When the population becomes too large, the<br>resources become scarce and competition increases. This can lead to<br>some individuals dying or not reproducing, which helps to keep the<br>population size in check.indicates the coding of amino acids in the following<br>table:The correct answer is <b>**B. 2**.</b> Correct<br>Statement I is true because the third position of a codon is usually<br>not significant. For example, the codons UUA, UUX, UUA, and  |  | * Statement A: The herce competitive relationship, the individuals   |         |
| resources, they may become aggressive towards each other. This<br>can lead to conflict and even violence.<br>* Statement B: The individuals in the population compete for food,<br>accommodation, lighting,<br>This statement is also correct. Individuals in a population compete<br>for all the resources they need to survive and reproduce. These<br>resources can include food, water, shelter, mates, and territory.<br>* Statement D: Thanks to the competition, the number of<br>individuals is maintained at an appropriate level.<br>This statement is also correct. Competition helps to regulate the size<br>of a population. When the population becomes too large, the<br>resources become scarce and competition increases. This can lead to<br>some individuals dying or not reproducing, which helps to keep the<br>population size in check.<br>The correct answer is <b>**B</b> . <b>2**</b> .<br>Correct<br>Mathieved and the following<br>table:<br>Amino acid codon<br>Lue 5'xuu3 ';5'xux3 ';  |  | This statement is correct. When individuals compete for limited  |         |
| can lead to conflict and even violence.* Statement B: The individuals in the population compete for food,<br>accommodation, lighting,<br>This statement is also correct. Individuals in a population compete<br>for all the resources they need to survive and reproduce. These<br>resources can include food, water, shelter, mates, and territory.<br>* Statement D: Thanks to the competition, the number of<br>individuals is maintained at an appropriate level.<br>This statement is also correct. Competition helps to regulate the size<br>of a population. When the population becomes too large, the<br>resources become scarce and competition increases. This can lead to<br>some individuals dying or not reproducing, which helps to keep the<br>population size in check.indicates the coding of amino acids in the following<br>table:<br>Amino acid codon<br>Lue 5'xuu3 ';5'xux3 ';Correct  |  | resources, they may become aggressive towards each other. This   |         |
| <ul> <li>* Statement B: The individuals in the population compete for food, accommodation, lighting, This statement is also correct. Individuals in a population compete for all the resources they need to survive and reproduce. These resources can include food, water, shelter, mates, and territory.</li> <li>* Statement D: Thanks to the competition, the number of individuals is maintained at an appropriate level. This statement is also correct. Competition helps to regulate the size of a population. When the population becomes too large, the resources become scarce and competition increases. This can lead to some individuals dying or not reproducing, which helps to keep the population size in check.</li> <li>indicates the coding of amino acids in the following table:</li> <li>Amino acid codon</li> <li>Lue 5'xuu3 ';5'xux3 ';</li> </ul>   |  | can lead to conflict and even violence.  |         |
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| * Statement D: Thanks to the competition, the number of individuals is maintained at an appropriate level.         This statement is also correct. Competition helps to regulate the size of a population. When the population becomes too large, the resources become scarce and competition increases. This can lead to some individuals dying or not reproducing, which helps to keep the population size in check.         indicates the coding of amino acids in the following table:       The correct answer is **B. 2**.       Correct         Amino acid codon       Statement I is true because the third position of a codon is usually not significant. For example, the codons UUA, UUX, UUA, and       Correct   |  | resources can include food, water, shelter, mates, and territory.  |         |
| individuals is maintained at an appropriate level.         This statement is also correct. Competition helps to regulate the size of a population. When the population becomes too large, the resources become scarce and competition increases. This can lead to some individuals dying or not reproducing, which helps to keep the population size in check.         indicates the coding of amino acids in the following table:       The correct answer is **B. 2**.         Amino acid codon       Statement I is true because the third position of a codon is usually not significant. For example, the codons UUA, UUX, UUA, and   |  | * Statement D: Thanks to the competition, the number of  |         |
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| some individuals dying or not reproducing, which helps to keep the population size in check.         indicates the coding of amino acids in the following table:         Amino acid codon         Lue 5'xuu3 ';5'xux3 ';   |  | resources become scarce and competition increases. This can lead to  |         |
| population size in check.         indicates the coding of amino acids in the following table:         Amino acid codon         Lue 5'xuu3 ';5'xux3 ';  |  | some individuals dying or not reproducing, which helps to keep the   |         |
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| table:         Amino acid codon         Lue 5'xuu3 ';5'xux3 ';         Statement I is true because the third position of a codon is usually not significant. For example, the codons UUA, UUX, UUA, and  | indicates the coding of amino acids in the following   | The correct answer is <b>**B. 2**.</b>   | Correct |
| Lue 5'xuu3 '; not significant. For example, the codons UUA, UUX, UUA, and  | table:   | Statement L is true because the third position of a order is usually   |         |
|  | Lue 5'xuu3 ';5'xux3 ';   | not significant. For example, the codons UUA, UUX, UUA, and  |         |

| 5'xua3 ':5'xug3 '   | UUG all code for the amino acid leucine. Therefore, if a mutation   |           |
|---|---|-----------|
| Trn 5'ugg3'   | occurs in the third position of any of these codons, the amino acid   |           |
| His 5'xau3 '.5'xax3 '   | encoded by the codon will not change  |           |
| ARG 5'XGU3 '.5'xgx3 '.  | encoded by the codon will not change.   |           |
| ARO 5 AOO5 ,5 AgA5 ,<br>5'yaa2 '.5'yaa2 '   | Statement II is false because there are some asses where a mutation   |           |
| J AgaJ ,J AggJ  | in the third president of a sedent case shows a the series and a  |           |
|   | In the third position of a codon can change the amino acid encoded  |           |
| The encryption triplet is the trio that corresponds to the  | by the codon. For example, the codon UGG codes for the amino  |           |
| coding of amino acids and the triplet ends with the end of  | acid tryptophan, but if a mutation occurs in the third position to  |           |
| the Caoma ending on MARN.Suppose a genetic segment  | change UGG to UGA, the resulting codon will now code for the  |           |
| in synthetic bacteria mRIP has the beginning and  | amino acid stop.  |           |
| sequence of nucleotides as follows:   |   |           |
|   | Statement III is true because if a mutation occurs in the third   |           |
| Mold  | position of a codon and causes the codon to become a stop codon,  |           |
| Summary of mARN   | then the polypeptide chain will be terminated early.  |           |
| 3'TAXGAAAAXGXXGXTAGXAATT5 '   |   |           |
| mARN 5'AUGXUUGGGXGGXAXGUUAA3 '  | Statement IV is false because a mutation in the third position of a   |           |
|   | codon cannot change the start codon of a gene. The start codon is   |           |
| Knowing that each mutation replaces a pair of   | always AUG and no mutation can change that  |           |
| nucleotides on this gone that produces a pair of  | always AOO, and no induction can change that.   |           |
| theory have many of the following statements are true?  | Therefore, the only two statements that are true are L and III. So the  |           |
| theory, now many of the following statements are true?  | i neretore, the only two statements that are true are 1 and 111. So the   |           |
| 1. Iviaximum of three coding triplets when any mutations  | answer is 2.  |           |
| replace any nucleotide pair in third place do not change  |   |           |
| the amino acid in the polypeptide.  |   |           |
| II. There is an encryption triplet when a mutation occurs   |   |           |
| in third place always changes the amino acid in the   |   |           |
| polypeptide chain.  |   |           |
| III. There are two coding triplets when the mutation  |   |           |
| occurs in third place, causing the occurrence of Caon to  |   |           |
| end early.  |   |           |
| IV. There is an encryption triplet when a mutant occurs in  |   |           |
| third place that leads to the appearance of the appearance  |   |           |
| of the MRNA created from this gene  |   |           |
| $\wedge \Lambda$  |   |           |
| $\mathbf{P}$  |   |           |
| <b>D.</b> 2.  |   |           |
| C. 3.   |   |           |
| D. I.   |   |           |
|   |   | _         |
| which of the following is the following form, disease or  | The answer must be a form of disease or syndrome. Of the above  | Incorrect |
| which of the following is the following form, disease or syndrome?  | The answer must be a form of disease or syndrome. Of the above<br>choices, only hemorrhage is difficult to coagulate is a form of   | Incorrect |
| which of the following is the following form, disease or syndrome?<br>A. Syndrome.  | The answer must be a form of disease or syndrome. Of the above choices, only hemorrhage is difficult to coagulate is a form of disease. So the answer is (B).   | Incorrect |
| <ul><li>which of the following is the following form, disease or syndrome?</li><li>A. Syndrome.</li><li>B. Hemorrhage is difficult to coagulate.</li></ul>  | The answer must be a form of disease or syndrome. Of the above choices, only hemorrhage is difficult to coagulate is a form of disease. So the answer is (B).   | Incorrect |
| <ul> <li>which of the following is the following form, disease or syndrome?</li> <li>A. Syndrome.</li> <li>B. Hemorrhage is difficult to coagulate.</li> <li>C. Urinary dura disease.</li> </ul>  | The answer must be a form of disease or syndrome. Of the above choices, only hemorrhage is difficult to coagulate is a form of disease. So the answer is (B).   | Incorrect |
| <ul> <li>which of the following is the following form, disease or syndrome?</li> <li>A. Syndrome.</li> <li>B. Hemorrhage is difficult to coagulate.</li> <li>C. Urinary dura disease.</li> <li>D. Excessive syndrome.</li> </ul>  | The answer must be a form of disease or syndrome. Of the above choices, only hemorrhage is difficult to coagulate is a form of disease. So the answer is (B).   | Incorrect |
| <ul> <li>which of the following is the following form, disease or syndrome?</li> <li>A. Syndrome.</li> <li>B. Hemorrhage is difficult to coagulate.</li> <li>C. Urinary dura disease.</li> <li>D. Excessive syndrome.</li> <li>Consider hybridization P: Q AABB x A Abb Know in</li> </ul>  | The answer must be a form of disease or syndrome. Of the above choices, only hemorrhage is difficult to coagulate is a form of disease. So the answer is (B).   | Incorrect |
| <ul> <li>wnich of the following is the following form, disease or syndrome?</li> <li>A. Syndrome.</li> <li>B. Hemorrhage is difficult to coagulate.</li> <li>C. Urinary dura disease.</li> <li>D. Excessive syndrome.</li> <li>Consider hybridization P: ♀ AABB x ♂ Aabb.Know in some cells during the body's gametes ♂ the chromosome.</li> </ul>  | The answer must be a form of disease or syndrome. Of the above choices, only hemorrhage is difficult to coagulate is a form of disease. So the answer is (B). The answer is <b>**D. AAABB**.</b>  | Incorrect |
| <ul> <li>wnich of the following is the following form, disease or syndrome?</li> <li>A. Syndrome.</li> <li>B. Hemorrhage is difficult to coagulate.</li> <li>C. Urinary dura disease.</li> <li>D. Excessive syndrome.</li> <li>Consider hybridization P: ♀ AABB x ♂ Aabb.Know in some cells during the body's gametes ♂, the chromosome pair contains a pair of A A canes that do not discoving in a pair of A A canes that do not discoving in a source of the discovering in the discovering in the source of the discovering in the discovering i</li></ul> | The answer must be a form of disease or syndrome. Of the above choices, only hemorrhage is difficult to coagulate is a form of disease. So the answer is (B). The answer is <b>**D. AAABB**.</b> The geneture AAABB is not possible because the Aa genes in the   | Incorrect |
| <ul> <li>wnich of the following is the following form, disease or syndrome?</li> <li>A. Syndrome.</li> <li>B. Hemorrhage is difficult to coagulate.</li> <li>C. Urinary dura disease.</li> <li>D. Excessive syndrome.</li> <li>Consider hybridization P: ♀ AABB x ♂ Aabb.Know in some cells during the body's gametes ♂, the chromosome pair contains a pair of AA genes that do not dissociate in feed reduction, other processor that take place.</li> </ul>  | The answer must be a form of disease or syndrome. Of the above choices, only hemorrhage is difficult to coagulate is a form of disease. So the answer is (B). The answer is <b>**D. AAABB**.</b> The genotype AAABB is not possible because the Aa genes in the male agents cannot be separated during majoring. The call.  | Incorrect |
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| <ul> <li>wnich of the following is the following form, disease or syndrome?</li> <li>A. Syndrome.</li> <li>B. Hemorrhage is difficult to coagulate.</li> <li>C. Urinary dura disease.</li> <li>D. Excessive syndrome.</li> <li>Consider hybridization P: ♀ AABB x ♂ Aabb.Know in some cells during the body's gametes ♂, the chromosome pair contains a pair of AA genes that do not dissociate in fecal reduction, other processes that take place normally.Which of the following genotypes is not workhold at F12.</li> </ul>  | The answer must be a form of disease or syndrome. Of the above choices, only hemorrhage is difficult to coagulate is a form of disease. So the answer is (B). The answer is **D. AAABB**. The genotype AAABB is not possible because the Aa genes in the male gametes cannot be separated during meiosis. The only possible genotypes in the F1 generation are AaBb, Aabb, and aabb.  | Incorrect |
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| completely dominant. Give 6 P (denoted by A, B, C, D, E,   | * Statement I is false. Based on the phenotype ratio of F1, we can                |           |
|--|---|-----------|
| F) of this species to perform the following hybrids:   | only determine the genotype of 3 of the 6 P                                       |           |
| Hybrid 1 (P): $\mathcal{A}$ Black hair (A) $\times \mathcal{Q}$ Black fur (B) produces   | * Statement II is true. There are 2 genotypes that specify brown fur              |           |
| F 1 with 75% black fur: 25% brown fur  | nhenotynes: BB and Bh   |           |
| Hybrid 2 (P): $\mathcal{A}$ Vellow hair (C) $\times \mathcal{O}$ White hair (D)  | * Statement III is false. The genotype ratio of the offspring of D and            |           |
| reduces E 1 with 100% valley for   | E will be $1/2$ DD: $1/2$ Dd: $1/2$ EE: $1/4$ dd. This is not similar to the      |           |
| produces $\Gamma_1$ with 100% yellow fut.  | E will be $1/2$ DD. $1/2$ Dd. $1/2$ EE. $1/4$ dd. This is not similar to the      |           |
| Hybrid 3 (P): $\bigcirc$ Brown hair (E) $\times \stackrel{\times}{\downarrow}$ Yellow Hair (F)   | phenolypic ratio of 25% white hair: 25% yellow lur: 50% brown                     |           |
| produces F_1 with 25% white hair: 25% yellow fur: 50%  |   |           |
| brown fur.   | * Statement IV is true. The genotype ratio of the offspring of A and              |           |
| In theory, how many of the following statements are true?  | F will be $1/2$ AA: $1/2$ Aa: $1/2$ FF: $1/4$ aa. This is similar to the          |           |
| II. There are 2 genotypes that specify brown fur   | phenotypic ratio of 50% black fur: 50% yellow fur.                                |           |
| phenotypes.  |   |           |
| I. If based only on the phenotype ratio F_1 created from   | Therefore, only statement II is true. So the answer is <b>**B</b> . 1 <b>**</b> . |           |
| the above hybrids, determine the exact genotype of 4 of 6  |   |           |
| Р.   |   |           |
| III.Let the child (D) mate with the child (E) to create a  |   |           |
| child with a genotype ratio similar to the phenotypic ratio.   |   |           |
| IV.For the child (A) mating with the child (F), my life can  |   |           |
| have a rate of 50% of black fur: 50% of the yellow fur.  |   |           |
| A. 2.  |   |           |
| B. 1.  |   |           |
| C. 3.  |   |           |
| D. 4.  |   |           |
| According to modern synthetic evolution theory how   | The correct answer is <b>**C** 3</b>  | Incorrect |
| many of the following statements are true?   |   | medirect  |
| I Mutations and random factors all provide primary   | * Statement Lie true Mutations are the primary source of genetic                  |           |
| n. With the substance of the substance o | Statement 1 is true. With an one for the primary source of genetic                |           |
| II The speed of formation the eduction monolation in   | variation in a population, and random factors can further increase                |           |
| If the speed of forming the adaptive population in   |   |           |
| bacteria is slower than diploid species.   | * Statement II is false. Bacteria can evolve much more rapidly than               |           |
| III.Random elements and non -random mating both  | diploid species, because they have a shorter generation time and can              |           |
| change the frequency of alleles and the genotype   | exchange genetic material more easily.  |           |
| composition of the population.   | * Statement III is true. Both random elements and non-random                      |           |
| IV.Di - genetic and non -random mating can be poverty of   | mating can change the frequency of alleles and the genotype                       |           |
| the gene of a population.  | composition of a population.  |           |
| <u>A. 2.</u>   | * Statement IV is false. Di-genetic and non-random mating can                     |           |
| <mark>B. 1.</mark>   | actually increase the genetic diversity of a population.                          |           |
| C. 3.  |   |           |
| D. 4.  | Therefore, there are 3 true statements out of the 4 given, so the                 |           |
|  | correct answer is C.  |           |