

CAT 2023 VARC

Mock 1 - 24



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1. Direction (1-4): Read the following passage carefully and answer the questions that follow.

In our quest to find what makes humans unique, we often compare ourselves with our closest relatives: the great apes. But when it comes to understanding the quintessentially human capacity for language, scientists are finding that the most tantalizing clues lie farther afield. Human language is made possible by an impressive aptitude for vocal learning. Infants hear sounds and words, form memories of them, and later try to produce those sounds, improving as they grow up. Most animals cannot learn to imitate sounds at all. Though nonhuman primates can learn how to use innate vocalizations in new ways, they don't show a similar ability to learn new calls. Interestingly, a small number of more distant mammal species, including dolphins and bats, do have this capacity. But among the scattering of nonhuman vocal learners across the branches of the bush of life, the most impressive are birds. All birds especially parrots, songbirds, hummingbirds learn new vocalizations. The calls and songs of some species in these groups appear to have even more in common with human language, such as conveying information intentionally and using simple forms of some of the elements of human language such as phonology, semantics, and syntax. And the similarities run deeper, including analogous brain structures that are not shared by species without vocal learning. These parallels have motivated an explosion of research in recent decades, says the ethologist Julia Hyland Bruno of Columbia University, who studies social aspects of song learning in zebra finches. "Lots of people have made analogies between language and birdsong," she says. Bruno studies zebra finches because they are more social than most migratory birds—they like to travel in small bands that occasionally gather into larger groups. "I'm interested in how it is that they learn their culturally transmitted vocalizations in these groups," says Hyland Bruno, a co-author of a paper in the 2021 Annual Review of Linguistics comparing birdsong learning and culture with human language. Both birdsong and language are passed culturally to later generations through vocal learning. Geographically distant populations of the same bird species can make small tweaks to their songs over time, eventually resulting in a new dialect—a process similar in some ways to how humans develop different accents, dialects, and languages. With all these similarities in mind, it's reasonable to ask if birds themselves have language. It may come down to how you define it. "I wouldn't say they have language in the way linguistic experts define it," says the neuroscientist Erich Jarvis of the Rockefeller University in New York City, and a co-author of

Hyland Bruno's paper on birdsong and language. But for scientists like Jarvis who study the neurobiology of vocal communication in birds, "I would say they have a remnant or a rudimentary form of what we might call spoken language.

A. Which of the following demonstrates that the calls and songs of a few birds are much more comparable to human language?

A

Birds, like people, can establish languages by making little changes to their songs.

B

Birds transmit information and mimic the basic elements of human language.

C

Birds in larger groups can learn new vocal sounds.

D

Many people have drawn similarities between language and bird singing

Solution

Explanation: The given passage is talking about exploring the calls and songs of some species especially birds that have quite a lot in common with human speech. In the given passage, it is mentioned that "The calls and songs of some species in these groups appear to have even more in common with human language, such as conveying information intentionally and using simple forms of some of the elements of human language such as phonology, semantics, and syntax." From these lines, we can understand that sentence B justifies how calls and songs of a few birds are much more comparable to human language. All other options get

eliminated because the question is about understanding how the calls and songs of a few birds are much more similar to human language. Therefore, option B is the correct answer.

B. Which one of the following, if true, would best complement the passage's findings?

A

Though birds can learn to use their natural vocal sounds in new ways, but they do not have the ability to learn new calls.

B

Birds are unlikely to pick up human language while in captivity they can become quite talkative.

C

Birds have a basic version of spoken language and also have the ability to learn new vocalizations.

D

Though birds have much in common with human language, they do not transmit information in the same way that people do.

Solution

Explanation: The given passage is talking about exploring the calls and songs of some species especially birds that have quite a lot in common with human speech. In the given passage, it is mentioned that “All birds especially parrots, songbirds, hummingbirds learn new vocalizations.”

Thus, option A gets eliminated. Option B gets eliminated as the information is not mentioned in the given passage. In the given passage, it

is mentioned that “The calls and songs of some species in these groups appear to have even more in common with human language, such as conveying information intentionally and using simple forms of some of the elements of human language such as phonology, semantics, and syntax.” Thus, option B gets eliminated. In the given passage, it is mentioned that “All birds especially parrots, songbirds, hummingbirds learn new vocalizations.” and “I would say they have a remnant or a rudimentary form of what we might call spoken language.” Thus, we can infer that option C is the correct answer.

C. Which of the following statements cannot possibly be inferred from the given passage?

A

Erich Jarvis is the neuroscientist of the Rockefeller University in New York City.

B

Birds, unlike humans, are likely to create dialects by making minor changes to their songs over time, eventually resulting in a new dialect.

C

Through vocal learning, birds pass on their cultural knowledge of birdsong and language to future generations.

D

Zebra finches prefer to move in small groups that occasionally gather into bigger groups.

Solution

Explanation: The given passage is talking about exploring the calls and songs of some species especially birds that have quite a lot in common with human speech. In the given passage, it is mentioned that ““I wouldn’t say they have language in the way linguistic experts define it,” says the neuroscientist Erich Jarvis of the Rockefeller University in New York City”. Thus, option A gets eliminated. In the given passage, it is mentioned that “Both birdsong and language are passed culturally to later generations through vocal learning.” Thus, option C gets eliminated. In the given passage, it is mentioned that “Bruno studies zebra finches because they are more social than most migratory birds—they like to travel in small bands that occasionally gather into larger groups.” Thus, option D gets eliminated. In the given passage, it is mentioned that “Geographically distant populations of the same bird species can make small tweaks to their songs over time, eventually resulting in a new dialect—a process similar in some ways to how humans develop different accents, dialects, and languages.” From the above lines, we can understand that option B cannot possibly be inferred from the given passage. Therefore, option B is the correct answer.

D. According to the given passage, the author is LEAST likely to agree with which of the following?

A There are numerous parallels between human and bird brain structure.

B Animal species, such as dolphins and bats, have the ability to learn new calls.

C

Erich Jarvis and Hyland Bruno collaborate on bird song and language research

D

Hyland Bruno, an ethologist, studies the neurology of bird vocal communication.

Solution

Explanation: The given passage is talking about exploring the calls and songs of some species especially birds that have quite a lot in common with human speech. Let's refer to the following lines: • The similarities run deeper, including analogous brain structures that are not shared by species without vocal learning. • Though nonhuman primates can learn how to use innate vocalizations in new ways, they don't show a similar ability to learn new calls. Interestingly, a small number of more distant mammal species, including dolphins and bats, do have this capacity • "I wouldn't say they have language in the way linguistic experts define it," says the neuroscientist Erich Jarvis of the Rockefeller University in New York City, and a co-author of Hyland Bruno's paper on birdsong and language From the above lines, we can understand that the author agrees with options A, B and C. In the last paragraph, it is mentioned that "Erich Jarvis is the neuroscientist who study the neurobiology of vocal communication in birds". Thus, we can understand that the author is least likely to agree with option D. Therefore, option D is the correct answer.

2. Direction : Read the following passage carefully and answer the questions that follow.

Everyone likes to think that they are immune to marketing. Deep down you know that investing in crypto won't make you as brave as one of the Wright brothers. But then one January day, you find yourself realize the truth: You're a gullible, fallible, easily manipulated idiot after all. This is exactly how I found myself betting on NFL playoff games this winter. In early January, online sports betting became legal in New York, where I live, joining a host of states that have legalized it since 2018, when the Supreme Court rescinded a federal ban on sports wagering. As the sports-betting veil lifted, it was accompanied by a deluge of ads for wagering apps and a shock-and-awe bombardment of promotions that seemed to make no financial sense. No consumer or medium was spared. Not surprisingly, the marketing blitz worked. In just three weeks, Empire State gamblers had placed a record-breaking \$1.6 billion in online bets—and yeah, I got suckered into it too. One month later, with the Super Bowl finally here, I've been drawn deep into the sports-betting vortex. The apps, while occasionally fun and nerve-racking, are even more confusing and addictive than I could have ever imagined. The first sportsbook app that got me was Caesars, whose ads have featured the comedian J. B. Smoove, Halle Berry, and virtually every member of the Manning football clan (not just the famous ones). Ahead of the first round of the NFL playoffs, the Caesars app promised a \$300 free bet for new users, a pretty typical promo. But in an eye-popping flourish, Caesars also matched up to \$3,000 that a new user deposited in the app. Although plenty of seasoned bettors reportedly jumped on this wild offer, this type of whole-hog commitment frightened me, so instead, I threw in the minimum \$20 to qualify and immediately put the \$300 on the Kansas City Chiefs to beat the Pittsburgh Steelers by at least 13 points. Even though I thought I knew enough about sports to bet on them occasionally, Caesars' promotional free bet was a bit more complicated than I had expected. When the Chiefs beat the Steelers by 21 points, my winning bet didn't become actual money I could withdraw from Caesars and spend in the real world. It instead became \$573 in "bonus money" that would disappear forever unless I wagered a certain amount of it within seven days. When I plunked down a much more modest bet on the Los Angeles Rams–Arizona Cardinals game that weekend (and lost), my slightly smaller pile of bonus money didn't become real either. I tried to engage with the app's support-chat feature to find out why, but no one ever responded.

A. According to the given passage, all the statements are true, EXCEPT

A The author's total investment in Caesars was \$300.

B The author made his first betting on the Chiefs to beat the Steelers by 21 points.

C Immediately after signing into the Caesars app, it promises a \$300 free bet for new users.

D None of these

Solution

Explanation: The given passage is talking about online sports betting. Let's refer to the following statements:

- "I threw in the minimum \$20 to qualify and immediately put the \$300 on the Kansas City Chiefs to beat the Pittsburgh Steelers by at least 13 points." Thus, option A is false as the total money invested by the author is '\$320'. Option B is false as the author put the money on the chiefs to beat the steelers by at least 13 points.
- "Ahead of the first round of the NFL playoffs, the Caesars app promised a \$300 free bet for new users". Thus, option C is false as Caesars promises the \$300 free bet for new uses after first round of the NFL playoffs.

B. According to the given passage, which of the following is/are the characteristic/s of the marketing blitz? I. Having a huge profit in the market. II. Displaying a large number of advertisements in apps. III.

A steady stream of app promotions. IV. Youngplayers purchasing online games in the market.

A Only (I)

B Both (II) and (III)

C Both (III) and (IV)

D Only (IV)

Solution

Explanation: The given passage is talking about online sports betting.

Marketing blitz is a marketing strategy designed to promote a product or a business quickly through the use of mass media.

In the given passage, it is mentioned that “As the sports-betting veil lifted, it was accompanied by a deluge of ads for wagering apps and a shock-and-awe bombardment of promotions that seemed to make no financial sense.

No consumer or medium was spared. Not surprisingly, the marketing blitz worked. In just three weeks, Empire State gamblers had placed a record-breaking \$1.6 billion in online bets”.

Therefore, option B is the correct answer.

C. What led the author to believe that Caesars' promotional free bet was more complicated?

A The author put his money into the free promotional bet and lost the bet.

B The author could not withdraw his winning cash prize of \$300.

C
Although the author won the bet, his winnings were not converted into real money.

D The author lost his bet on the Los Angeles Rams–Arizona Cardinals game.

Solution

Explanation: The given passage is talking about online sports betting.

In the given passage, it is mentioned that “I threw in the minimum \$20 to qualify and immediately put the \$300 on the Kansas City Chiefs to beat the Pittsburgh Steelers by at least 13 points. Even though I thought I knew enough about sports to bet on them occasionally, Caesars’ promotional free bet was a bit more complicated than I had expected. When the Chiefs beat the Steelers by 21 points, my winning bet didn’t become actual money I could withdraw from Caesars and spend in the real world.”

It means that he has won the bet in free promotional bet, but he couldn’t make his winnings into real money and withdraw it. Therefore, option C is the correct answer.

D. Which sequence of the words below best captures the narrative of the passage?

A

Legalization > online sports betting > New York > number of advertisements > billions of profits

B

Invest in betting > marketing blitz > legalization of betting > \$300 free bet > loss of amount

C

Legalizing > online betting > \$300 free bet > invest \$3000 > loss of amount

D

Legalization > online sports betting > New York in 2018 > invest \$20 > loss of money

Solution

Explanation: The given passage is talking about online sports betting.

The passage recalls an incident in the author's life in which he got involved in online sports betting and then realised he had lost money.

Option B gets eliminated as the marketing blitz started after the legalization of online sports betting in New York.

Option C gets eliminated as the author didn't make an investment of \$3000.

Option D gets eliminated as the passage says that online sports betting was legalized in several states in 2018. But in New York, it was legalized in early January.

Thus, we can understand that option A best represent the sequence of words that best captures the narrative of the passage.

Therefore, option A is the correct answer.

3. Study the following information carefully and answer given questions.

Five sentences are given below. Out of these, four come together to form a coherent paragraph, but one sentence does not fit into the sequence, choose the sentence that does not fit in into the sequence.

A. For Indian scientists of those days, science was a double rebellion, against English domination as well as the fatalistic ethos of Hinduism.

B. The programme appears to have been designed to make youth be proud about India's scientific achievements.

C. The Government is organising a Science Week as a prelude to National Science Day on February 28 that commemorates Sir C.V. Raman's discovery on light scattering.

D. On the contrary, this event should be used to celebrate the true spirit of sciencethus promoting critical thinking in our academic centres.

A A

B B

C C

D D

Solution

The correct sequence of the sentences is:

- The Government is organising a Science Week as a prelude to National Science Day on February 28 that commemorates Sir C.V. Raman's discovery on light scattering.
- The programme appears to have been designed to make youth be proud about India's scientific achievements.
- Using this opportunity as nationalistic mission is rather unfortunate.
- On the contrary, this event should be used to celebrate the true spirit of science thus promoting critical thinking in our academic centres.

All the sentences are talking about a Science event that celebrates Sir C.V. Raman's discovery. Whereas, sentence A is talking about the perception of science for Indian scientists of those days.

Therefore, option A is the correct answer.

B. A. Thus, the UN Environment Assembly meeting in February-March 2022 may finalize a way forward for global cooperation in regard to control plastic waste.

B. Human activities such as overfishing, habitat loss, the introduction of invasive species, ocean acidification, and ocean warming have a negative impact on marine life.

C. A report released by the United Nations Environment Programme (UNEP) last year estimated that emissions of plastic waste into the aquatic ecosystems may triple by 2040 if no meaningful action is taken.

D. Plastic products in the form of bags, bottles, etc. are convenient, but take a very long time to decompose.

A A

B B

C C

D D

Solution

The correct sequence of the sentences is:

- A report released by the United Nations Environment Programme (UNEP) last year estimated that emissions of plastic waste into the aquatic ecosystems may triple by 2040 if no meaningful action is taken.
- Thus, the UN Environment Assembly meeting in February-March 2022 may finalize a way forward for global cooperation in regard to control plastic waste.
- Plastic products in the form of bags, bottles, etc. are convenient, but take a very long time to decompose.
- Increasing global consumption and low participation in recycling programmes have led to more plastic waste.

All the sentences are talking about the increasing consumption of plastic and the effects of plastic waste into the aquatic ecosystems. Whereas, sentence B is talking about the negative impact on marine life due to human activities such as overfishing, ocean warming etc.

Therefore, option B is the correct answer.

4. Study the following information carefully and answer given question:

Four sentences that are a part of paragraph are given below. The sentences may or may not be in the right order. Create the sequence that forms a coherent paragraph.

A. India has embarked on a new journey — a new free trade agreement (FTA) journey to be precise — with renewed zeal and vigour.

B. India's approach towards FTAs is now focusing more on gaining meaningful market access and facilitating Indian industry's integration into global value chains.

C. As Union Minister of Commerce and Industry has repeatedly emphasised, India would no longer be signing trade agreements just to join a group, but the new approach of FTA negotiations would respond to the need of new emerging dynamics in international trade and the Indian economy.

D. Under the revamped FTA strategy, the Government of India has prioritised at least six countries or regions to deal with, in which the United Arab Emirates (UAE) figures at the top of the list for an early harvest deal.

A BCDA

B CDAB

C BADC

D

DCBA

Solution

The correct sequence of the sentences is: CDAB

- India has embarked on a new journey — a new free trade agreement (FTA) journey to be precise — with renewed zeal and vigour.
- India's approach towards FTAs is now focusing more on gaining meaningful market access and facilitating Indian industry's integration into global value chains.
- As Union Minister of Commerce and Industry has repeatedly emphasised, India would no longer be signing trade agreements just to join a group, but the new approach of FTA negotiations would respond to the need of new emerging dynamics in international trade and the Indian economy.
- Under the revamped FTA strategy, the Government of India has prioritised at least six countries or regions to deal with, in which the United Arab Emirates (UAE) figures at the top of the list for an early harvest deal.

Therefore, option B is the correct answer.

B. A. India has a population of about 135 crore people and is the sixth largest economy in the world with a high growth potential.

B. But this growth potential cannot be achieved without giving equal opportunity to every State.

C. The low-income States (LIS) are deprived on many fronts such as they have low accessibility to credit, low investments, low power availability and accessibility, and high energy costs.

D. On the other hand, the high-income States (HIS) have a big share in industry and commerce because they are not deprived on the same fronts.

A CDBA

B DBAC

C ADCB

D BADC

Solution

The correct sequence of the sentences is: ADCB

- India has a population of about 135 crore people and is the sixth largest economy in the world with a high growth potential.
- But this growth potential cannot be achieved without giving equal opportunity to every State.
- The low-income States (LIS) are deprived on many fronts such as they have low accessibility to credit, low investments, low power availability and accessibility, and high energy costs.

- On the other hand, the high-income States (HIS) have a big share in industry and commerce because they are not deprived on the same fronts.

Therefore, option C is the correct answer.

C. A. The country faces the dual challenge of achieving nutrition security, as well as addressing declining land productivity, land degradation and loss of ecological services with change in land use.

B. Not surprisingly, widespread concerns about poverty, malnutrition and the need for a second Green Revolution are being made in tandem.

C. Over 32% of children below five years still underweight and 18.7% of women and 16.2% of men unable to access enough food to meet basic nutritional needs.

D. India is ranked 101 out of 116 countries in the Global Hunger Index, 2021.

A BCDA

B BADC

C CBAD

D DCBA

Solution

The correct sequence of the jumbled sentences is: DCBA

- India is ranked 101 out of 116 countries in the Global Hunger Index, 2021.
- Over 32% of children below five years still underweight and 18.7% of women and 16.2% of men unable to access enough food to meet basic nutritional needs.
- Not surprisingly, widespread concerns about poverty, malnutrition and the need for a second Green Revolution are being made in tandem.
- The country faces the dual challenge of achieving nutrition security, as well as addressing declining land productivity, land degradation and loss of ecological services with change in land use.

Therefore, option D is the correct answer.

5. Study the following information carefully and answer given questions:

A paragraph is followed by four alternatives which have summarized the passage in their own way. Pick the option that best summarizes the passage. If none of the alternatives is correct, choose option E 'none of these' as your answer.

A. The National Education Policy (NEP) 2020 has recommended a revamp of the higher education scene in India to make education more student-centric and multi-disciplinary. A new initiative stemming from this desire is an 'Academic Bank of Credits' (ABC) in higher education idea, which was notified recently by the University Grants Commission (UGC) for implementation. Theoretically, this idea can usher in positive disruption in the jaded higher education sector in the country. This scheme also has all the right and laudable intentions and would probably work well in a society with a more equitable distribution of resources. However, there are a number of practical hurdles which could make this scheme unworkable.

A

The new UGC plan "Academic Bank of Credits' (ABC) in Higher Education Idea' is a welcome step towards improving the quality of higher education in India.

B

A new initiative to reform education in India claims to have encountered flaws in its design, as it does not appear to be practical to implement.

C

In a society, where the quality of education varies drastically from one institute to the next, the new scheme can lead to unmanageable academic and administrative issues.

D

With the new UGC initiative, education will become truly flexible and interdisciplinary and offer an excessive number of courses.

Solution

The given passage is talking about the new initiative notified by the UGC. It says that this initiative is more practical in a society where there is equal distribution of resources.

Options A and D get eliminated as the passage is not positive about initiating this scheme.

Option B gets eliminated as the passage doesn't mention that the scheme consists of flaws.

Option C best summarizes the given passage as it says that in an unequitable society, this scheme is not practical or workable.

Therefore, option C is the correct answer.

- B. Green spaces in cities and towns, besides providing various ecosystem services and public health benefits also offer services of psychological relaxation, stress reduction, physical activities and reduction of climate-related vagaries such as pollution, heat waves, etc. One of the major reasons warranting the need for urban green spaces is the fact that apart from consuming a huge quantum of natural resources by our cities, almost 70% of all greenhouse emissions is generated from an urban built environment. The ever-increasing pace of urbanisation is going to make this condition worse in the years ahead.**

A

Green space and other nature-based solutions are an essential component for the development of sustainable, resilient and inclusive cities.

B

The balance of imperatives between the environment and poverty eradication are vital dimensions of environment preservation.

C

If severe floods, droughts and more frequent storms erode the assets of citizens, governments of the future will have to pay for lack of foresight today.

D

Despite the net zero campaign by a number of countries, the timing of the world's carbon dioxide emissions reaching net zero is not the critical parameter for the safety of humanity.

Solution

The given passage is talking about the need of green spaces in cities and towns.

Option B gets eliminated as the passage doesn't mention anything about poverty eradication.

Option C gets eliminated as the passage doesn't refer to floods, droughts and more frequent storms.

Option D gets eliminated as the passage doesn't refer to net zero campaign.

Option A best summarizes the given passage as it is talking about the importance of Green space and other nature-based solutions for inclusive cities.

Therefore, option A is the correct answer.

C. Last year, while inaugurating a webinar on ‘Vehicle Crashes and Road Safety’, Union Minister for Road Transport and Highways Nitin Gadkari remarked that “the target is to reduce 50% of road accidents by 2025”, adding that “we can achieve zero deaths due to road accidents by 2030”. He said that the Ministry of Road Transport and Highways had participated in a Road Safety conference in Sweden in 2020 —where it was conceptualized to have zero road fatalities in India by 2030. However, despite setting a target of a 50% reduction in accidental deaths, the fatalities from road accidents actually increased in the last decade. Therefore, there was a need to expedite the task of saving lives in accidents.

A

The Ministry of Road Transport and Highways has done a remarkable job in setting a goal of zero unintentional deaths and delivering great service in this area.

B

The Centre has utterly failed to meet the aim set by the Ministry of Road Transport and Highways, as road deaths have significantly increased over the last decade.

C

To save lives on highways, quality trauma care at the district level holds the key.

D

Only fixing targets will not be a pragmatic approach to reduce road accident fatalities unless the States and the Centre are on the same page in improving and strengthening the infrastructure of States.

Solution

The given passage is talking about the Centre setting the target to reduce the fatalities from road accidents.

Option A gets eliminated as the passage doesn't mention that the Centre has already been delivering great service in reducing the fatality rate.

Option B gets eliminated since we cannot form a hypothesis that the Centre has utterly failed in reaching its goal. There is yet time to reach the target set by the Centre.

Option C gets eliminated as the passage doesn't mention anything about quality trauma care.

Option D best summarizes the given passage as it says that the Centre must act practically and improve its infrastructure if it has to reach its target.

Therefore, option D is the correct answer.

6. Read the given passage carefully and answer the questions that follow.

By cosmic standards, Proxima Centauri is right next door. At 4.2 light-years away, it is the closest star to our sun, which makes the planets around Proxima the closest planets to us of any in the universe.

Right now, one of the best ways to get information about our neighboring planets is from a very sophisticated telescope instrument in Chile that astronomers use to peer beyond Earth's atmosphere. Exoplanets are everywhere, and researchers have detected several thousand of them around the Milky Way, but there's something special about finding an exoplanet close to home. And that instrument—the Echelle Spectrograph for Rocky Exoplanet and Stable Spectroscopic Observations, or ESPRESSO—recently gave astronomers that extra kick, evidence of a new potential planet.

The new maybe-planet isn't a planet until further study, but if the data check out, the discovery would mean that Proxima Centauri has its very own planetary system, with worlds brewed from their star's leftover gas and dust just as our own planets were. In 2016, astronomers found Proxima b, a planet about the size of Earth, orbiting in the star's habitable zone, and have since confirmed its existence. They're still working to confirm Proxima c, the larger planet they detected in 2019. Now they're tentatively excited about this latest candidate planet, which they're calling Proxima d, and which looks like an even better prospect than Proxima c.

Astronomers can't actually see any of the Proxima planets, but they can detect signs of their presence by observing the movements of their star. As the planets go round, their gravity tugs at Proxima Centauri, causing the star to wobble ever so slightly. João Faria, an astrophysicist at the Instituto de Astrofísica e Ciências do Espaço, in Portugal, and his colleagues were studying Proxima Centauri in this way, trying to glimpse Proxima b to help confirm its existence, when they found a surprise wobble that they believe comes from another, smaller planet.

According to the data, Proxima d is about a quarter of Earth's mass and orbits just outside of Proxima Centauri's habitable zone, locked into a special configuration around its star. "One side of the planet is always in daytime, and one side is always in nighttime," Emily Gilbert, a Ph.D. candidate in planetary science at the University of Chicago who studies exoplanets, told me. Proxima d takes just five days to loop

around its star, and given the proximity, the planet probably doesn't have an atmosphere, Gilbert said; it would be boiled away on the day side, and frozen off on the night side.

With news of Proxima d now out in the world, it's up to other astronomers to analyze the available ESPRESSO data and also make their own observations of the maybe-planet. To learn more about this maybe-planet, particularly its composition, astronomers would need to spot Proxima d crossing in front of its star and examine how much starlight the planet blocks. Perhaps, along the way, they will uncover a new mysterious signal, as Faria and his team did when they observed Proxima b.

A. Which of the following cannot be inferred from the given passage?

A

A. Proxima Centauri has its own planetary system. B. As the planets rotate, their gravitational pull on Proxima Centauri causes the

B

star to wobble slightly.

C

C. Emily Gilbert, a Ph.D. candidate in planetary science at the University of Chicago studies exoplanets.

D

D. A highly sophisticated telescope instrument in Chile is one of the best ways to gather data about our neighbouring planets.

Solution

The given passage is talking about finding and confirming our neighbouring planets using the instrument ESPRESSO.

In the given passage, it is mentioned that “The new maybe-planet isn’t a planet until further study, but if the data check out, the discovery would mean that Proxima Centauri has its very own planetary system”.

From the above lines, we can understand that it is not yet confirmed that Proxima Centauri has its own planetary system.

Therefore, option A is the correct answer.

B. Which of the following, if true, would best support the author’s views?

A

One side of the proxima d is always in the daytime and frozen off, and the other side is always in the nighttime and boiled away.

B

Proxima c was discovered in 2019, at the same time when astronomers discovered the movements of Proxima d.

C

When compared to Proxima b and Proxima c, Proxima d is the smallest.

D

Faria, an astrophysicist at the Institute in Canada, has been has been researching Proxima Centauri.

Solution

The given passage is talking about finding and confirming our neighbouring planets using the instrument ESPRESSO.

Let's refer to the following statements from the passage:

“One side of the planet is always in daytime, and one side is always in nighttime,” Gilbert said; it would be boiled away on the day side, and frozen off on the night side.

Thus, option A gets eliminated.

“João Faria, an astrophysicist at the Instituto de Astrofísica e Ciências do Espaço, in Portugal, and his colleagues were studying Proxima Centauri in this way, trying to glimpse Proxima b to help confirm its existence, when they found a surprise wobble that they believe comes from another, smaller planet (Proxima d).” Thus, option B gets eliminated.

“João Faria, an astrophysicist at the Institute de Astrofísica e Ciências do Espaço, in Portugal” Thus, option D gets eliminated.

In the given passage, it is mentioned that “Proxima c, the larger planet they detected in 2019, astronomers found Proxima b, a planet about the size of Earth, According to the data, Proxima d is about a quarter of Earth's mass and orbits”.

Thus, we can conclude that proxima d is the smallest.

Therefore, option C is the correct answer

C. Which of the following would best describe how Proxima-d was found?

A

When scientists were exploring the space using the instrument ESPRESSO, they found Proxima d, the largest planet.

B

While examining how much starlight the Proxima c blocks, scientists spot Proxima d.

C

While observing the composition of Proxima b, scientists spot Proxima d.

D

When Faria and his colleagues were trying to glimpse Proxima b by observing the movements of its star, they found Proxima d.

Solution

The given passage is talking about finding and confirming our neighbouring planets using the instrument ESPRESSO.

In the given passage, it is mentioned that “João Faria, an astrophysicist at the Instituto de Astrofísica e Ciências do Espaço, in Portugal, and his colleagues were studying Proxima Centauri in this way, trying to glimpse Proxima b to help confirm its existence, when they found a surprise wobble that they believe comes from another, smaller planet. According to the data, Proxima d is about a quarter of Earth’s mass”.

Therefore, option D is the correct answer.

D. Which of the following best describes the process of identifying the composition of the maybe-planets?

A

Astronomers would need to examine the movements of the may-be planet’s star.

B

Astronomers would need to observe the may-be planet as it collects the left-over gas and dust from its star.

C

Astronomers would need to detect the particular may-be planet when it passes in front of its star and measure how much brightness it blocks.

D

Astronomers would need to observe the movements of their star and identify indicators of the may-be planet's presence.

Solution

The given passage is talking about finding and confirming our neighbouring planets using the instrument ESPRESSO.

In the given passage, it is mentioned that “To learn more about this maybe-planet, particularly its composition, astronomers would need to spot Proxima d crossing in front of its star and examine how much starlight the planet blocks.” From the above lines, we can infer that the above process is used to identify the composition of the may-be planet.

Therefore, option C is the correct answer.

7. Read the given passage carefully and answer the questions that follow.

Armenia's medieval monastery at Noravank, nestled amid the craggy slopes of the country's mountainous terrain, is a striking exemplar of Armenian architectural tradition. Elegant geometrical symmetries abound in its places of worship, and the ancient technique of khachkar—the carving of ornate crosses into steles—is on display outside, where several of the tall stone slabs watch over the complex like holy sentinels. A few miles to the north lies the cave system known as Areni-1, where the earliest known evidence of both human shoes and winemaking was uncovered by archaeologists.

Few American citizens are familiar with these awe-inspiring historical sites, and fewer still have had a chance to visit. With the aid of a brand-new virtual reality app titled My Virtual Armenia, however, anyone in possession of a smartphone can tour the sites at their own pace, taking in the scenery with a panoramic “Magic Window” view and listening to audio commentary from regional experts.

The app—now freely downloadable on both iOS and Android devices—is the product of deep collaboration between the Smithsonian, the world heritage preservation organization CyArk, and the educational app developer FarBridge. Attendees of this year's Smithsonian Folklife Festival, which is celebrating the rich culture of Armenia through live performances and craft demonstrations on the National Mall, are invited to use the app to enhance their experience. But users all over the world, not just in Washington, D.C., will be able to explore the wonders of Noravank and the Areni caves in high-resolution digital form even after the festival.

CyArk—a stylized shortening of “cyber archive”—has been in the business of immortalizing heritage sites digitally since their founding in 2003. The creator of the organization, Iraqi expat Ben Kacyra, is a civil engineer by trade, one who pioneered in the field of portable laser scanning. During the chaos of the second Iraq War, Kacyra found he had both the will to see Iraqi heritage protected from destruction at the hands of terrorists and the technological means to help make that happen.

Since those early days, Kacyra's team has traveled to dozens of sites all over the globe, painstakingly scanning them from a multitude of locations and angles to generate comprehensive digital point maps of what exactly they look like. Kacyra has modeled sites ranging from Ancient Thebes and Corinth to Chichén Itzá and Mount Rushmore. Molly Fannon, director of the Smithsonian's Office of International

Relations, recalls an auspicious encounter with Elizabeth Lee, CyArk’s vice president of programs and development, at a 2014 United Nations colloquium on the preservation of cultural heritage. “We got to speaking about the fact that people who worry about cultural heritage disappearing often speak to themselves and not others in other sectors,” Fannon says, and how detrimental such a cloistered academic approach could be in the long term.

- A. **Which of the following correctly justifies the lines “CyArk—a stylized shortening of “cyber archive”—has been in the business of immortalizing heritage sites digitally since their founding in 2003.”?**

A

CyArk’s team has scanned dozens of historical sites and developed a comprehensive digital point maps of what they look like in order to preserve them.

B

The CyArk has team assisted in making the app available for free download on both iOS and Android smartphones.

C

The CyArk team has assisted visitors in exploring the wonders of Noravank and the Areni caverns.

D

By maintaining high vigilance, CyArk's team has been able to protect the historical sites from terrorists' destruction.

Solution

In the given passage, it is mentioned that “CyArk—a stylized shortening of “cyber archive”—has been in the business of immortalizing heritage sites digitally since their founding in 2003. The creator of the organization, Iraqi expat Ben Kacyra, is a civil engineer by trade, one who pioneered in the field of portable laser scanning”, “Kacyra’s team has traveled to dozens of sites all over the globe, painstakingly scanning them from a multitude of locations and angles to generate comprehensive digital point maps of what exactly they look like.”

Since the given lines are about immortalizing heritage sites, we can understand that sentence A correctly justifies the given lines.

Therefore, option A is the correct answer.

B. Which of the following scenarios resulted in the creation of the app ‘My Virtual Armenia’?

A

The few American citizens are familiar with the historical sites of Armenia.

B

There are just a few means available to get to Armenia's historical monuments.

C

No American citizens are familiar with the awe-inspiring historical sites of Armenia, and no one has yet had the opportunity to visit them.

D

Armenia wanted to demonstrate that Armenia's historical sites are prominent examples of Armenian architectural history.

Solution

In the given passage, it is mentioned that “Few American citizens are familiar with these awe-inspiring historical sites, and fewer still have had a chance to visit. With the aid of a brand-new virtual reality app titled My Virtual Armenia, however, anyone in possession of a smartphone can tour the sites at their own pace”.

(‘few’ indicates ‘none / not many’ whereas ‘the few’ indicates ‘everything / everyone that is there’)

From the above lines, we can infer that lack of accessibility and familiarity led to the invention of the app.

Therefore, option D is the correct answer.

C. According to the given passage, the author tends to agree with all but --

A

Archaeologists discovered both human shoes and winemaking in the Areni caves.

B

The Smithsonian Folklife Festival honours Elizabeth Lee as part of its celebration of Armenia's rich culture.

C

Kacyra has modeled sites ranging from Ancient Thebes and Corinth to Chichén Itzá and Mount Rushmore.

D

Molly Fannon is the director of the Smithsonian's Office of International Relations.

Solution

In the given passage, it is mentioned that “Attendees of this year’s Smithsonian Folklife Festival, which is celebrating the rich culture of Armenia through live performances and craft demonstrations on the National Mall, are invited to use the app to enhance their experience.”

(‘All but’ means ‘all except’)

From the above lines, we can understand that the author does not agree with sentence B.

Therefore, option B is the correct answer.

D. The app designed to help individuals tour the places at their own pace, is the joint venture of which of the following?

A

Ben Kacyra and Iraqi expat Molly Fannon

B

The Smithsonian, the world heritage preservation organization CyArk, and the educational app developer FarBridge

C

The Smithsonian, the educational app developer CyArk, and the world heritage preservation organization FarBridge

D

Ben Kacyra and Iraqi expatElizabeth Lee

Solution

The given passage is talking about the preservation of Armenia’s historical sites.

In the given passage, it is mentioned that “The app—now freely downloadable on both iOS and Android devices—is the product of deep collaboration between the Smithsonian, the world heritage preservation organization CyArk, and the educational app developer Far Bridge.”

Therefore, option B is the correct answer.



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