

2024 Şubat YÖKDİL

Fen Bilimleri

1

With a difference of up to 50 degrees Celsius between day and night-time, deserts have the greatest temperature --- of any habitat.

- A) emergence
- B) calculation
- C) range
- D) equivalence
- E) proficiency

2

In 2017, scientists supported the --- of forest protection systems which could remove more than 7 gigatonnes of carbon dioxide from the atmosphere annually.

- A) abandonment
- B) fragility
- C) resistance
- D) challenge
- E) establishment

3

Nitrogen is the most --- element in the atmosphere, making up about 78% by volume of the air that surrounds the Earth.

- A) conflicting
- B) convertible
- C) appropriate
- D) abundant
- E) corruptible

4

Some viruses can infect and kill an engineered *Escherichia coli* bacterium that was --- resistant to all viral infections, but further changes have made the bacterium much more virus-resistant.

- A) comprehensively
- B) supposedly
- C) instantly
- D) consequently
- E) endlessly

5

A simple, third eye on top of the head of the Cuban rock iguana senses light and helps --- body temperature.

- A) offer
- B) capture
- C) eradicate
- D) regulate
- E) foresee

6

On the seashore, as the tide comes in, many plants and animals are plunged underwater; when it recedes, they are --- the sun or air.

- A) aimed at
- B) exposed to
- C) divided by
- D) likened to
- E) relieved of

7

The use of symbols for the chemical elements --- long before a systematic method ---.

- A) has existed / has been developed
- B) would have existed / will be developed
- C) had existed / was developed
- D) could exist / had been developed
- E) used to exist / is developed

8

Several studies have found signs of new neurons in the adult human hippocampus, leading many researchers --- that this part of the brain --- itself throughout people's lifetime.

- A) to accept / could renew
- B) accepting / should renew
- C) having accepted / had to renew
- D) to have accepted / can renew
- E) accept / ought to renew

9

The scientific past is bound --- chronological order, in which events are organised --- linear order and causality follows time's arrow.

- A) up / into
- B) by / in
- C) to / onto
- D) for / through
- E) across / between

10

In order to find out more ---- how insects move in their environments, entomologists mounted a tiny camera ---- the back of the insect which only operates when triggered by an accelerometer.

- A) for / into
- B) with / from
- C) about / on
- D) between / along
- E) to / over

11

Sea ice is a general term that comprises several types of ice originating ---- the freezing of marine waters, which occurs ---- a water temperature of about -1.8°C , depending upon salt content.

- A) out / over
- B) in / through
- C) from / at
- D) about / below
- E) for / on

12

In the late 19th century, many observations of antibiotic action among microorganisms were reported; ----, the significance of these observations was not appreciated at the time.

- A) however
- B) as a result
- C) similarly
- D) therefore
- E) otherwise

13

---- green plants get the energy they need directly from sunlight, herbivores must get the energy that they need for life functions from plants.

- A) While
- B) Unless
- C) As long as
- D) As
- E) In case

14

---- humans watched birds in flight, they have wanted to imitate them, but many of the earliest attempts at human flight are nothing but mythology.

- A) Now that
- B) Even though
- C) Ever since
- D) Until
- E) Just as

15

---- structures and artefacts tell part of the story of scientific achievement in the ancient world, most of our knowledge comes from the written record.

- A) Until
- B) By the time
- C) Although
- D) Only if
- E) In case

16

Cacao can be grown in many different types of soil, ---- they have good moisture retention and are well drained.

- A) provided that
- B) even if
- C) unless
- D) but
- E) whereas

17

---- safety issues surrounding early rocket designs, another difficulty was that the spacecraft and rockets could be used only once.

- A) Despite
- B) In contrast with
- C) Unlike
- D) On behalf of
- E) In addition to

18

---- the directions of the rising and setting of the sun, which varied with place and season, the most noticeable directions that could help a sailor were those of the winds.

- A) Apart from
- B) Due to
- C) As a result of
- D) In case of
- E) As opposed to

19

The natural environment provides a multitude of sounds, which are often **so** quiet ---- we can barely perceive them.

- A) so / that
- B) whether / or
- C) either / or
- D) the more / the less
- E) both / and

20

All known chemical elements have been charted on a grid known as the Periodic Table, ---- they are listed and arranged **according** to their relative masses and chemical tendencies.

- A) which
- B) where
- C) what
- D) when
- E) how

Landsat maps are images of the Earth taken at an altitude of 912 kilometres by an orbiting Landsat satellite, originally launched in the 1970s. (21)--- cameras, the Landsats use multispectral scanners, which detect visible green and blue wavelengths. These scanners can detect differences (22)--- soil, rock, water, vegetation, and mineral content. Visible light images have proved useful--some of the earliest Landsat images (23)--- that some small Pacific islands were up to 16 kilometres away from their charted positions. The results are displayed in 'false-colour' maps, where the scanner data is represented in shades of easily distinguishable colours. The maps are used by farmers, oil companies and others interested in land management. Each image (24)--- an area of approximately 185 square kilometres. (25)--- they were not originally thought of as a source of financial gain, the maps are now offered for sale by the United States Geological Survey.

21

- A) As to
- B) Due to
- C) According to
- D) In case of
- E) Instead of

22

- A) up
- B) between
- C) off
- D) out
- E) at

23

- A) would have shown
- B) showed
- C) have shown
- D) were going to show
- E) were showing

24

- A) fulfils
- B) disrupts
- C) covers
- D) reports
- E) creates

25

- A) Provided that
- B) Although
- C) As
- D) Whenever
- E) Unless

Natural pest control is important to agriculture. Pests destroy an estimated 25 to 50 percent of the world's crops each year. Without the natural predators that control agricultural pests, these figures (26)---- even higher. Natural pest control also has many advantages (27)---- chemical controls such as pesticides and herbicides. Pesticides are usually non-selective, killing the pest (28)---- helpful organisms such as pollinators. Pesticides can create 'a new problem', (29)---- pests may develop resistance over time, forcing farmers to change to another chemical to combat the same pest. Like fertilisers, application of pesticides and herbicides seems (30)----. Realising their limitations, farmers are turning to biological methods of controlling pests.

26

- A) must be
- B) should have been
- C) would be
- D) are being
- E) will have been

27

- A) over
- B) between
- C) at
- D) among
- E) under

28

- A) rather than
- B) similar to
- C) instead of
- D) thanks to
- E) together with

29

- A) so that
- B) even if
- C) although
- D) as
- E) until

30

- A) non-existent
- B) unfamiliar
- C) inefficient
- D) unnoticed
- E) improbable

31

Although there are global conservation measures taken by authorities, ----.

- A) zoological parks have helped to save some sea turtle species from extinction
- B) it is forbidden to breed some rare species of sea turtles and tortoises commercially
- C) human activities such as hunting predators have a positive effect on sea turtle populations
- D) sea turtle fossils are found frequently in ancient sedimentary deposits from the Jurassic eras
- E) the dramatic decline in sea turtle populations is yet to cease in many parts of the world

32

As telescopes became more powerful and were situated in space, ----.

- A) scientists were able to extend their knowledge of the outer space and gather more reliable data
- B) the distance between the Earth and other planets prompted the need for space telescopes
- C) visual distortion through the atmosphere was the biggest problem of earth-based telescopes
- D) the cost of operating earth-based instruments was lower than launching telescopes into space
- E) the astronomer renowned for the development of large telescopes was George Ellery Hale

33

Wherever humans are active in a forested region of the world, ----.

- A) the density of forested areas remains unchanged in the Amazon region
- B) trees are not vital to the survival of many other organisms growing naturally
- C) often the most useful species of trees are becoming rare through overexploitation and loss of habitat
- D) threatened species of trees are mostly elderly, and infested with worms and other organisms
- E) tree species in forests vary greatly depending on the climate of the region

34

Because predators often use their prey's movements to detect them, ----.

- A) some animals are not considered as preys in the hierarchy of food chain
- B) predators usually possess excellent senses to find their prey
- C) the reason behind predatory behaviour is not always killing for food
- D) many prey remain as still as possible when a predator approaches
- E) most prey successfully deter a predatory attempt by fighting back

35

Although a map is only a representation of spatial reality, and all maps contain some element of distortion or inaccuracy, ----.

- A) the development of detailed maps has been brought by geographical expeditions
- B) a printed map shows spatial relationships for only a specific point in history
- C) a map is typically a two-dimensional representation of a three-dimensional surface
- D) the accuracy of the information illustrated in maps may be degraded as time passes
- E) maps are the most direct means of displaying and analysing geographic information

36

Although not as structurally diverse as other classes of natural products, ----.

- A) carbohydrates are among the most commonly found chemical constituents of plants
- B) all these microorganisms depend highly on plant-derived carbohydrates
- C) the amount of carbohydrates in the genetic makeup of some plants varies by species
- D) new techniques have been developed to incorporate artificial groups into carbohydrates
- E) chemists have generalised so many types of substances such as novel carbohydrates

37

----, the spacecraft *Mariner 10* was designed to orbit the Sun instead, enabling it to fly past the planet.

- A) Because getting a spacecraft into orbit around Mercury was so challenging
- B) As the craters on Mercury's surface resembled the ones on the Moon
- C) When Mercury's sky was first observed as black due to the incredibly thin atmosphere
- D) While Mercury's surface is much more varied than it seemed before
- E) Although Mercury was stripped of its outer layers in a catastrophic collision

38

At low concentrations, greenhouse gases do not directly affect human health ----.

- A) as if all contaminant gases exist in the atmosphere in variable amounts
- B) while natural sources of gases are from active volcanoes and soils
- C) because the amount of greenhouse gases in the atmosphere is rising
- D) even though they can pose a threat due to their capacity to absorb radiation
- E) unless artificial substances in the atmosphere affect our well-being

39

Many species of animals are dependent on trees for their existence ----.

- A) so invasive predators are becoming an increasing threat to many species of animals
- B) because animals feed on their leaves, nectar, or fruit, or hang on branches for shelter
- C) even if a rainforest canopy can provide habitats for a diversity of flora and fauna
- D) unless the loss of a species of tree threatens the livelihood of certain organisms
- E) as far as trees depend upon animals for their pollination and the dispersal of their seeds

40

The energy industry boosted the Scottish economy by creating work on oil rigs and in refineries in the 1960s ----.

- A) even though most employers tried hard to improve the state of the national economy
- B) as if the emerging industries such as electronics and textiles created new jobs
- C) while much more crude oil could be processed and refined into useful petroleum products
- D) after rich reserves of oil and natural gas were discovered under the North Sea
- E) if the country had exported the excess of what it produced in refineries

41

Most of the indoor air pollution is due to human sources ----.

- A) as contamination can occur from infiltration of external atmospheric pollutants into indoor areas
- B) unless there has been an increase in the home use of wood-burning and gas
- C) but the chemicals in pollutants can be divided into inorganic and organic
- D) while human-produced chemical releases originate from various types of appliances
- E) although natural ones exist, including plants, animals, and other living organisms

42

The mitochondria are called the powerhouses of the cell because without them, cells would be unable to extract enough energy from the nutrients and all cellular functions would cease.

- A) Hücrenin enerji santrali denen mitokondriler olmasaydı, hücreler besinlerden yeterli enerjiyi elde edemeyecekleri için bütün hücresel fonksiyonlar sona ererdi.
- B) Mitokondrilere hücrenin enerji santralleri denir çünkü onlar olmadan hücreler besinlerden yeterli enerji elde edemezlerdi ve bütün hücresel fonksiyonlar sona ererdi.
- C) Mitokondrilere hücrenin enerji santralleri denmesinin sebebi onlar olmadan hücrelerin besinlerden yeterli enerji elde edememeleri ve bütün hücresel fonksiyonların sona ermesidir.
- D) Mitokondriler olmadan besinlerden yeterli enerji elde edilemeyeceği ve bütün hücresel fonksiyonlar sona ereceği için mitokondrilere hücrenin enerji santralleri denir.
- E) Mitokondrilere hücrenin enerji santralleri denir çünkü onlar olmasaydı hücreler besinlerden yeterli enerji elde edemeyecekleri için bütün hücresel fonksiyonlar sona ererdi.

43

The Global Navigation Satellite System was designed to determine the position and velocity of an unlimited number of moving objects at any point on the Earth's surface, in the air, and in space.

- A) Dünya yüzeyinde, havada ve uzayda herhangi bir noktada hareket halindeki sınırsız sayıdaki nesnenin konum ve hızını saptayabilmek, tasarlanan Küresel Navigasyon Uydu Sistemi sayesinde mümkün olmuştur.
- B) Küresel Navigasyon Uydu Sistemi, Dünya yüzeyinde, havada ve uzayda yer alan herhangi bir noktada hareket halindeki sınırsız sayıda nesnenin konumunu ve hızını saptamak üzere tasarlanmıştır.
- C) Küresel Navigasyon Uydu Sisteminin tasarlanış amacı, Dünya yüzeyinde, havada ve uzayda herhangi bir noktada hareket halinde olan sınırsız sayıdaki nesnenin konum ve hızını saptamaktır.
- D) Küresel Navigasyon Uydu Sistemi, Dünya yüzeyinde, havada ve uzayda herhangi bir noktada hareket halinde olan sınırsız sayıdaki nesnenin konum ve hızına dair bilgi sağlamak için tasarlanmıştır.
- E) Dünya yüzeyinde, havada ve uzayda herhangi bir noktada hareket halinde olan sınırsız sayıdaki nesnenin konum ve hızını saptamak için Küresel Navigasyon Uydu Sistemi tasarlanmıştır.

44

Chemical irrigation can be an effective method for pest management provided that the system is properly designed and well operated and that the essential safety precautions are followed.

- A) Kimyasal sulamanın düzgün tasarlanması, iyi işletilmesi ve gerekli güvenlik önlemlerinin takip edilmesi onun etkili bir haşere kontrol yöntemi olduğunu gösterir.
- B) Kimyasal sulamada, düzgün tasarlanmış, iyi işletilen ve gerekli güvenlik önlemlerinin takip edildiği bir sistem kullanılması durumunda bu yöntem etkili bir haşere kontrol yöntemi olabilir.
- C) Kimyasal sulamanın etkili bir haşere kontrol yöntemi olabilmesi için sistemin düzgün tasarlanması, iyi işletilmesi ve gerekli güvenlik önlemlerini takip etmesi gerekir.
- D) Kimyasal sulama, sistemin düzgün tasarlanması, iyi kullanılması ve gerekli güvenlik önlemlerinin takip edilmesi kaydıyla etkili bir haşere kontrol yöntemi olabilir.
- E) Kimyasal sulama, düzgün tasarlanan ve iyi işletilen bir sistemin yanı sıra gerekli güvenlik önlemlerinin takip edilmesiyle etkili bir haşere kontrol yöntemi olarak kullanılabilir.

45

Thanks to the large-scale integrated circuits which are used to make more powerful microprocessors, the computer industry has transformed the world.

- A) Daha güçlü mikro-işlemciler oluşturmak için büyük ölçekli tümleşik elektrik devrelerinin kullanılması, bilgisayar endüstrisinin dünyayı değiştirmesini sağlamıştır.
- B) Bilgisayar endüstrisinin dünyayı değiştirmesi daha güçlü mikro-işlemciler oluşturan büyük ölçekli tümleşik elektrik devrelerinin kullanımıyla olmuştur.
- C) Büyük ölçekli tümleşik elektrik devrelerinin daha güçlü mikro-işlemciler oluşturmak için kullanılması ile bilgisayar endüstrisi dünyayı değiştirmiştir.
- D) Daha güçlü mikro-işlemciler oluşturmak için kullanılan büyük ölçekli tümleşik elektrik devreleri sayesinde bilgisayar endüstrisi dünyayı değiştirmiştir.
- E) Bilgisayar endüstrisinin dünyayı değiştirmesi daha güçlü mikro-işlemciler oluşturmak için büyük ölçekli tümleşik elektrik devrelerinin kullanılması sayesinde.

46

Since the world can no longer disregard some issues caused by global warming, all countries need to develop effective solutions to deal with climate change.

- A) Küresel ısınma nedeniyle dünyada ortaya çıkan ve daha fazla göz ardı edilemeyen bazı sorunlar, tüm ülkelerin iklim değişikliğiyle başa çıkmak için etkili çözümler üretmesini gerekli kılmaktadır.
- B) Dünya küresel ısınmanın neden olduğu bazı sorunları artık göz ardı edemeyeceğinden tüm ülkelerin iklim değişikliğiyle başa çıkmak için etkili çözümler üretmesi gerekmektedir.
- C) Dünyanın küresel ısınmanın sebep olduğu bazı sorunları göz ardı etmesi artık mümkün değildir; bu yüzden tüm ülkelerin iklim değişikliğiyle başa çıkmak için etkili çözümler üretmesi gerekir.
- D) Dünyadaki tüm ülkeler küresel ısınmanın neden olduğu bazı sorunları göz ardı edemeyeceğinden iklim değişikliğiyle başa çıkmak için artık etkili çözümler üretmelidir.
- E) Tüm ülkeler küresel ısınmanın neden olduğu bazı sorunları göz ardı etmeyerek gereken etkili çözümleri üretmedikçe dünya iklim değişikliğiyle daha fazla başa çıkamayacaktır.

47

As a radioactive material decays, the atoms of the radioactive element change to other elements, and so the number of unstable atoms reduces with time.

- A) Radyoaktif bir madde bozundukça radyoaktif elementin atomları başka elementlere dönüşür ve böylece kararsız atomların sayısı zamanla azalır.
- B) Bozunan bir radyoaktif madde, radyoaktif elementin atomlarını başka elementlere dönüştürür ve bu sayede kararsız atomların sayısı zamanla azalır.
- C) Radyoaktif bir elementin atomları ancak radyoaktif madde bozunduğu zaman başka elementlere dönüşür ve böylece kararsız atomların sayısı zamanla azalır.
- D) Radyoaktif bir madde bozduğunda radyoaktif elementin atomları başka elementlere dönüşerek kararsız atomların sayısını zamanla azaltır.
- E) Kararsız atomların sayısı, radyoaktif bir madde zaman içinde bozundukça radyoaktif elementin atomlarının başka elementlere dönüşmesiyle azalır.

48

Biyologlar, Asya kıyı yengecinin yüksek hayatta kalma oranını uzun bir üreme mevsimine ve yiyecek için diğer türlerle olağanüstü rekabet etme yeteneğine bağlar.

- A) Biologists attribute Asian shore crab's high survival rate to a lengthy breeding season and its exceptional ability to compete with other species for food.
- B) Asian shore crab has an exceptional survival rate due to a lengthy breeding season and biologists attribute this to their ability to compete with other species for food.
- C) Because Asian shore crab has an exceptional ability to compete with other species for food, biologists attribute their high survival rate to a lengthy breeding season.
- D) Biologists attribute Asian shore crab's exceptional ability to compete with other species for food to their high survival rate after a lengthy breeding season.
- E) Asian shore crab's exceptional ability to compete with other species for food is due to their high survival rate and biologists attribute this to a lengthy breeding season.

49

Avustralya'daki deniz biyologları sadece dişi yunusların elle beslenmesine izin verir çünkü erkeklerin elle beslenmesi onların yiyecek yüzünden birbirlerine saldırmalarına sebep olur.

- A) Given the fact that male dolphins attack each other over the food during handfeeding, marine biologists in Australia only allow female ones to be hand-fed.
- B) Only female dolphins are allowed to be hand-fed because handfeeding males causes them to attack each other over the food according to marine biologists in Australia.
- C) Marine biologists in Australia only allow female dolphins to be hand-fed because handfeeding males causes them to attack each other over the food.
- D) Because handfeeding male dolphins causes them to attack each other over the food, marine biologists in Australia only allow female dolphins to be hand-fed.
- E) Marine biologists in Australia allow female dolphins to be only hand-fed given that males can harm each other over the food while being hand-fed.

50

Astrofiziğin, astronomik nesnelere anlamak için fizik kurallarını kullanan bir astronomi dalı olduğu bilinmesine rağmen, astronomi ve astrofizik terimleri sıklıkla birbirinin yerine kullanılır.

- A) Even though the terms astronomy and astrophysics are often used interchangeably, astrophysics which uses the laws of physics to understand astronomical objects is known to be a branch of astronomy.
- B) Despite the frequent use of the terms astronomy and astrophysics interchangeably, it is known that astrophysics, a branch of astronomy, uses the laws of physics to understand astronomical objects.
- C) Although the terms astronomy and astrophysics are often used interchangeably, astrophysics is known as a branch of astronomy that understands astronomical objects by using the laws of physics.
- D) In spite of the fact that astrophysics is a branch of astronomy which uses the laws of physics to understand astronomical objects, the terms astronomy and astrophysics are often used interchangeably.
- E) Although it is known that astrophysics is a branch of astronomy that uses the laws of physics to understand astronomical objects, the terms astronomy and astrophysics are often used interchangeably.

51

Sismik araştırmaların yarattığı gürültü kirliliği nedeniyle okyanuslar yakın gelecekte birçok tür için yaşanmaz hale gelebilir.

- A) There is a possibility that oceans may become uninhabitable for many species in the near future as a result of noise pollution seismic explorations create.
- B) Seismic explorations may cause oceans to become uninhabitable for many species in the near future as they create noise pollution.
- C) Because of noise pollution seismic explorations create, oceans may become uninhabitable for many species in the near future.
- D) Seismic explorations creating noise pollution will cause oceans to become uninhabitable for many species in the near future.
- E) In the near future, oceans may become uninhabitable for many species because seismic explorations create noise pollution.

52

Yapay zekâ üzerine çalışan araştırmacılar, yıllardır insan zekâsıyla kıyaslanabilecek zekâyâ sahip bir makine yapmanın mümkün olup olmadığını tartışmaktadır.

- A) Artificial intelligence researchers have been debating for years if it is possible to build an intelligent machine that can be compared with human intellect.
- B) The possibility of building a machine with intelligence and whether it can be compared to human intelligence or not have been debated by artificial intelligence researchers for years.
- C) For years, researchers working on artificial intelligence have debated the possibility of comparing the intelligence of a human being to a machine that has been built with such intelligence.
- D) Whether to build a machine with intelligence comparable to the intelligence of a human being or not has been a debate among artificial intelligence researchers for years.
- E) Researchers working on artificial intelligence have been debating for years whether it is possible to build a machine with intelligence that can be comparable to that of a human being.

53

Toprak dünyadaki neredeyse tüm çiçekli bitkilere ve hayvanların büyük bir kısmına ev sahipliği yapar ancak suda yaşamaya kıyasla toprak üstünde hayatta kalmak şartıcı derecede zordur.

- A) Land hosts nearly all of the flowering plants and most of the animals in the world but when living in water is compared to surviving on land, the latter is surprisingly more difficult.
- B) When compared to living in water, surviving on land which hosts nearly all of the flowering plants and a big part of animals of the world is surprisingly difficult.
- C) Land hosts nearly all the flowering plants and a large share of animals in the world; however, compared to living in water, surviving on land is surprisingly difficult.
- D) Being a host to a big proportion of almost all the flowering plants and the animals in the world, land is surprisingly difficult to survive on compared to living in water.
- E) Hosting nearly all of the flowering plants and most of the animals in the world, land is surprisingly more difficult to survive on in comparison to water.

54

Few of us really understand the workings of our own mind; we often behave irrationally, and do unpredictable things for reasons that are not obvious even to ourselves. The search to understand who we are and what really motivates us has been a long one. --- It has only been in the last century that we have begun to understand how the 1.5 kg of grey and white matter that sits on top of our spinal cord allows us to think. Yet, neuroscientists are now unearthing increasing evidence that much of what the brain does lies beneath our conscious awareness.

- A) The area of the brain called the neocortex is responsible for language production.
- B) Our brains, like our bodies, are the product of an extremely long process of development.
- C) Ancient Egyptians thought that their soul had nothing whatsoever to do with the brain.
- D) The seat of rational thought, the neocortex is seen by some as a sort of 'command centre'.
- E) Early human civilisations had little idea that the brain was responsible for cognition at all.

55

Public aquariums in the US have a long history of using marine exhibits to teach the people about basic biology, ecology, and conservation since the very beginning of their existence. --- Specialised exhibits were meant to portray local food fishes and proper use of those resources to visitors from a vast demographic profile. Over time, aquariums have shifted tank narratives to tell other stories, about subjects ranging from the importance of local ecosystems to artificial reef building. Historians and sociologists have shown that these spaces have played a large role in shaping the way Americans think about marine resources.

- A) When aquariums first opened to the public in the early 20th century, tank spaces were used to shape visitors' understanding of the submarine environment.
- B) Aquarium exhibits were much later seen as opportunities to teach the viewers about the natural history of an organism or an ecosystem.
- C) It was seen that aquarium visitors first showed little interest in perceiving how their personal behaviours would affect the quality of life in the marine realm.
- D) One study about the early aquariums reported that only a small minority of visitors read signage about pollution and climate change.
- E) The earliest visits had nothing to do with aquatic resources and the work of fisheries or with the responsibility humans had towards seas.

56

Most of the plastics we use are either thermoplastic or thermosetting. Thermoplastics include acrylics, nylon and polythene. When heated they get soft, so they can be shaped into any form, which also makes them easy to recycle. Milk containers can be melted and reformed into furniture, plastic water bottles become fleece jackets, and hard bottle tops can get a new lease of life as storage boxes. --- This makes thermosetting plastics almost impossible to recycle.

- A) Thus, it is important to opt for products made out of thermoplastics thanks to their recyclable nature.
- B) The hardening operation, therefore, transforms the material from a thermoplastic to a thermosetting condition.
- C) Thermoplastics are capable of being repeatedly softened or melted by increases in temperature and hardened by decreases in temperature.
- D) Thermosetting plastics, like Bakelite or polyurethane, are different because they harden when exposed to heat.
- E) Because plastics are resistant to the processes that break down materials naturally, they are widely used as kitchen appliances.

57

Cookies are simply tiny text files that a web server sends to the browser and retrieves each time the user accesses the website. The purpose is to maintain a sort of profile of the user containing such things as preferences as to how the user wants to view or use the site, shopping cart selections from previous sessions, and so on. --- In addition, they minimise the amount of repetitive data entry on the part of the user.

- A) There has been a certain amount of government regulation of web cookies.
- B) Many web users are not aware of security threats posed by cookies.
- C) In short, cookies enable a website to provide a more customised or personalised form of service.
- D) There can also be temporary cookies that apply only to the current session.
- E) Websites may in turn refuse to provide services to users who do not accept cookies.

58

The mechanism by which fermentation occurs was the subject of extensive discussion in the early 1800s. It was a key issue among those arguing over the concept of vitalism, the notion that living organisms are in some way inherently different from non-living objects. One aspect in this debate centred on the role of so-called 'ferments' in the conversion of sugars and starches to alcohol. Vitalists argued that ferments are inextricably linked to a living cell. --- However, an experiment carried out by the German chemist Eduard Buchner in 1896 found out that the ferments themselves, distinct from any living organism, could cause fermentation.

- A) Temperature plays a significant role in changing the texture of the fermented material.
- B) One of the most successful commercial applications of fermentation has been the production of ethyl alcohol.
- C) According to their point of view, if a cell is destroyed, ferments can no longer cause fermentation.
- D) The sort of container that is used during fermentation is of high importance.
- E) Antibiotics and other drugs can be prepared by fermentation if no other commercially efficient method is available.

59

The fertiliser elements rarely occur in nature in the elemental chemical form, and most would not be useful for plant nutrition if supplied in that form. Growing plants can assimilate only fertiliser elements in the combined state of inorganic compounds. Many modern fertiliser materials consist of compounds that are immediately usable by the crops to which they are applied. Others are quickly converted within the soil to forms that can be assimilated. --- Therefore, they prolong the release of easily absorbed compounds to provide sustained feeding over the growth cycle of the plants.

- A) Large amounts of fertiliser chemicals are also generated as by-products in the production of other chemicals.
- B) Fertilisers that can be used for the growth of crops are derived from many different types of raw materials.
- C) Some fertiliser chemicals are specifically designed to dissolve slowly or to delay reaction within the soil.
- D) Plants may show toxic responses to certain elements including some of the micronutrients present in soil.
- E) All these fertiliser elements, along with other chemical elements, occur naturally in agricultural soils in varying concentrations.

60

(I) When rain falls on natural lands such as forests and meadows, some of it soaks into the soil and then slowly makes its way to rivers, lakes, and oceans. (II) In cities, however, much of the land is paved with cement and asphalt, and water is unable to sink into the ground. (III) Because the rainwater runs over these surfaces, it gathers oil and grease from cars, fertilisers and pesticides from gardening, pathogens from animal wastes and heavy metals. (IV) These are dumped directly into natural waters with urban wastewater and are known to be one of the largest sources of pollution in lakes and rivers. (V) In many regions of developing countries, the sewers that carry storm waters are routed through sewage treatment plants.

- A) I B) II C) III D) IV E) V

61

(I) The human heart is a pear-shaped organ about the size of a fist, and it is made up of a special type of muscle called cardiac muscle, which is not found anywhere else in the body. (II) It acts as a pump to push the blood throughout the body, and it is separated into four chambers, or parts. (III) The upper chambers are called atria, and the lower chambers are called ventricles. (IV) The blood travels through a system that includes the heart and a network of blood vessels which is called a cardiovascular system. (V) A valve that can open and shut, connects each atrium to the ventricle below, and it controls the movement of blood through the heart.

- A) I B) II C) III D) IV E) V

62

(I) Every protein has a unique, genetically-mapped structure. (II) You probably could not discern one protein from another, but your immune system has an eagle eye for identifying proteins. (III) Researchers have developed a technique to classify proteins according to their size and composition. (IV) Within seconds after a specific protein enters your body, your immune system detects it as friend or foe. (V) If your immune system mistakes a food protein as an enemy invader, it jumps into attack mode and causes symptoms, such as rash, nausea and breathing difficulties.

A) I B) II C) III D) IV E) V

63

(I) The slang term 'bug' is used to describe errors occurring in computer programs. (II) Computer bugs can be divided into two categories: syntax errors and logic errors. (III) It may have originated during the early 1940s at Harvard University, when computer pioneer Grace Murray Hopper discovered that a dead moth had caused the breakdown of a machine on which she was working. (IV) When asked what she was doing while removing the corpse with tweezers, she replied, "I'm debugging the machine." (V) The moth's carcass, taped to a page of notes, is preserved with the trouble log notebook at the Virginia Naval Museum.

A) I B) II C) III D) IV E) V

64

(I) Advances in biotechnology have offered new powers to alter and control the phenomena of life. (II) However, this situation has also brought risks together with rewards. (III) The contemporary biotechnology that began in the last half of the 20th century arose from a deeper knowledge of genetics and molecular biology. (IV) In agricultural uses, biotechnology has raised concerns about hazards involving uncertain ecological interactions and health effects. (V) Additionally, the controversial techniques of cloning and stem cell research sustain heated debates about when human life begins.

A) I B) II C) III D) IV E) V

65

(I) The term 'metamorphosis' had once meant the death of one individual followed by another's appearance from its remains. (II) The metamorphosis of a butterfly from egg to caterpillar to chrysalis to adult is a familiar process to us today, but in the 17th century, it was unknown to many scientists. (III) However, Jan Swammerdam disagreed and showed that the stages in an insect's life cycle are different forms of the same creature. (IV) Each life stage has its own fully-formed internal organs, as well as early versions of the organs for later stages. (V) Seen in this new light, this interesting cycle of insects clearly warranted further scientific study.

A) I B) II C) III D) IV E) V

The US Navy uses powerful sound waves that can travel great distances through the water to detect submarines. The damaging effects of these energy waves on marine life is under study by marine scientists. Some researchers claim that damage from sound waves in large marine mammals such as whales is a short-term event, such as when sound waves may temporarily interfere with the whales' ability to communicate within their group. Other scientists claim that fish and entire populations of whales could suffer long-lasting consequences from the use of sound waves. The newest Navy active-sonar devices result in a sound of 235 decibels. When several groups of whales beached themselves after exposure to this sonar in 2001, scientists found that some of the whales died from decompression sickness, the same condition that can affect scuba divers who rise to the surface from deep water too quickly. There is no clear answer yet as to what level of underwater sound is too much for marine mammals but overall, underwater noise in the oceans is increasing. Although the Navy has reached agreements with environmental groups to limit the use of the powerful active-sonar devices, several other countries are developing similar systems, and control of excess sound in the oceans is a world-wide concern.

66

Which of the following is true about the effects of sound waves?

- A) Sound waves can cause a transient breakdown of communication between whales.
- B) Scientists agree that sound waves are not harmful for every species living in the ocean.
- C) Marine mammals living close to the ocean surface undergo long-term effects of sound waves.
- D) The US navy's newest active-sonar devices had much lesser effect on marine animals.
- E) Not only marine species but also researchers exposed to sound waves can suffer from medical conditions.

67

It is pointed out in the passage that marine scientists ----.

- A) have devised methods to conserve marine animals from the effects of sound waves
- B) could not measure the threshold at which underwater sound becomes harmful to marine animals
- C) failed to persuade the US Navy to limit the use of sound waves to a reasonable extent
- D) claim that sonar devices are not the only factor that cause an increase in the level of noise in the oceans
- E) have estimated the number of whales affected by sound waves

68

What is the passage mainly about?

- A) The impact of sound waves on marine animals
- B) Developments in submarine detection systems
- C) Precautions taken to protect marine life
- D) The ways of limiting excess sound in oceans
- E) Advancements in active-sonar systems

Macaques, a type of monkey that lives in Africa and Asia, have been subjects of great scientific interest for many years in both field and laboratory studies. Field studies have focused on their fascinating ecology, behaviour, and adaptations to a wide range of habitats. Laboratory studies of behaviour have involved research on intelligence, learning, social development, and communication. In one research study, for example, it was shown that the maternal-infant bond is essential for normal behavioural development. Without proper mothering, young macaques fail to develop all the social and communicative skills for successful life in a social group. Some of these social deficits may be relieved with adequate peer group experience, but in any case, the overwhelming importance of the social environment is evident. Adult males do not participate in infant care, except in a few species and occasional individuals. The Barbary macaque is notable for adult males taking an active role in carrying and holding infants, and even in Rhesus macaques, where infant care is normally the sole province of the mother, occasionally an adult male will show interest in holding infants. This is rare, however.

69

Which of the following is not true of scientific research on macaques?

- A) Research on macaques has been done not only in their natural habitats but also in man-made settings.
- B) Ecology, behaviour, and adaptations to a wide range of habitats are the concerns of field studies on macaques.
- C) Some laboratory studies have focused on communicative skills of macaques.
- D) The field and laboratory studies on macaques have traditionally focused on almost the same things.
- E) The relationship between mother and infant macaques is one of the issues that researchers have studied.

70

According to the passage, which of the following is the primary function of maternal care for young macaques?

- A) To help infants develop skills to lead a successful life in the community
- B) To eliminate infants' deficits that may cause trouble in their daily lives
- C) To compensate for the lack of attention that is not given by the father
- D) To assist infants overcome problems they might encounter in their peer groups
- E) To reduce the impact of the social environment on the development of infants

71

Which of the following could be inferred about infant care in macaques?

- A) The role of the males in infant care is limited to observing infants in their social environment, rather than looking after them.
- B) Males are involved in infant care largely because some females within a species might reject to care for the infant.
- C) In the majority of species of macaques, males are generally involved in introducing the environment to infants.
- D) Infant care in most species is the responsibility of the father, who helps the infant to get prepared for social encounters.
- E) There appears to be a clear sex-based division of labour in most macaque species in terms of duties related to infant care.

Some believe that mathematical problem-solving ability is encapsulated in a 'math gene' that endows some people with the ability to solve mathematical problems, while those who lack that gene are doomed to mathematical illiteracy. This notion is false; the ability to solve mathematical problems is influenced (but not determined) by many interacting genes, not a particular one. The term 'math gene' is often used to indicate an innate facility for mathematics, not a specific gene. The math gene concept has a negative impact on society; it discourages students from working harder by making failure at mathematics socially acceptable. Because of the many benefits of mathematical literacy, research suggests that the related genes are under a positive selection force, and thus mathematical ability is to a significant degree heritable. However, mathematical ability is also influenced by many non-genetic (environmental) factors. These factors include adequate nutrition and the absence of environmental toxins, both of which are necessary to ensure proper brain development and function. It is this complex web of interactions of genes and environment that is responsible for a person's mathematical ability.

72

Which of the following is true according to the passage?

- A) People with great competence in mathematics have a different brain structure compared to others.
- B) Our problem-solving ability in daily life may not be affected by our mathematical problem solving ability.
- C) There is a misunderstanding that our mathematical ability is governed by a particular gene.
- D) Mathematical illiteracy is considered to stem from a lack of proper social environment.
- E) Students manipulate their teacher by using their social environment to cover their failures in maths.

73

The author of the passage highlights the idea that ----.

- A) mathematical ability is influenced by a combination of interacting genes as well as environmental factors
- B) focusing too much on success in maths prevents children from exploring their skills in different domains
- C) people's mathematical knowledge may not always go hand-in-hand with their abilities
- D) mathematical ability is extremely difficult to improve as children grow up
- E) children whose parents lack innate capacity for mathematics cannot develop mathematical competence

74

What is the primary purpose of the author?

- A) To emphasise the influence of environmental factors on mathematical ability
- B) To warn parents and educators about the importance of mathematics
- C) To explain the crucial role of mathematical ability in positive sciences
- D) To falsify the concept of a gene being responsible for mathematical competence
- E) To underline the differences between factors shaping mathematical ability

The discovery of the geographic South Pole is a story of one of the most famous exploration races in history. British adventurer Robert F. Scott set out to be the first person to reach the South Pole in 1909. At the same time, unknown to Scott, Norwegian explorer Roald Amundsen was making secret plans to try the trip himself. When Amundsen set sail in 1910, he told his crew and government that he was on his way to the North Pole. Shortly after setting off, he made the crew switch directions and then, the race began. Amundsen reached the pole first, on December 14, 1911, and he set up a small tent and a flag to mark the occasion. This is what Scott saw when he arrived only a few weeks later on January 18, 1912. Unlike Amundsen, Scott and his crew did not survive the trip back from the South Pole. Today, the research station located at the South Pole is named in honour of these two explorers.

75

According to the passage, Amundsen ----.

- A) was the first person who aimed to start the journey to the South Pole
- B) introduced himself to Scott to become a companion in his expedition
- C) got the support of his government on his attributions to the discovery of the South Pole
- D) took a shortcut to reach the South Pole before Scott could manage it
- E) initially concealed the place where they were actually heading from his crew

76

Which of the following can be inferred from the passage?

- A) Scott and Amundsen were not famous among their contemporaries before their race became popular.
- B) After Scott's call, Amundsen changed his destination from the North Pole to accompany him in his expedition.
- C) Thanks to the governmental funds, the expedition of Amundsen to the South Pole was well-equipped.
- D) Although Scott planned to be the first person to reach the South Pole, he lost the chance of setting foot there first by a few weeks.
- E) The rivalry between Scott and Amundsen invoked interest among other explorers to study the South Pole.

77

It is clear from the passage that Scott ----.

- A) insisted on sharing the title of being the first to reach the South Pole with Amundsen
- B) passed away before he could witness Amundsen's arrival to the South Pole
- C) shared the reputation for the discovery of the South Pole with Amundsen despite his late arrival
- D) established a research station in the South Pole with Amundsen
- E) felt inferior to Amundsen even though he was the one who came up with the idea first

Young plants necessarily locate themselves apart from their parents in order to grow together with enough light and space. To do so, over millions of years, plants have come up with some amazing ways to scatter their seeds far and wide. Some do it all on their own, but many rely on outside help. Plants are incredibly good at spreading, even though they cannot move. They quickly take over newly-cleared ground, whether it is in someone's back garden, or on remote islands far out at sea. Plants set up home on other plants, and a few even manage to take root in walls and on rooftops, high above city streets. Plants can get to these places because their seeds are natural travellers. Thanks to them, hardly anywhere is beyond their reach. Snapping and bursting work well enough, but seeds travel even farther when they drift or float away. For example, many of the world's most successful weeds including dandelions have feathery fruits that are blown away by the wind. Each fruit contains a single seed and a bristly parachute that helps it along.

78

Which of the following is true according to the passage?

- A) Human intervention for the seed dispersal is almost non-existent.
- B) Wind is not effective for feathery fruit plants to scatter their seeds.
- C) Despite their immobility, plants are able to spread their seeds through external forces.
- D) Young plants locate themselves right next to their parents in the best spot with sunlight.
- E) Plants are not able to survive in distant urban environments due to lack of space.

79

It is understood from the passage that ----.

- A) plants differ in the way they disperse their seeds
- B) dandelions may use several methods to better their seed dispersal
- C) all plants rely on external agents to scatter their seeds
- D) plants can hardly adapt themselves to various environments
- E) bursting is the most useful way to disperse seeds to distant places

80

What is the passage mainly about?

- A) Plants' ability to find the best spot to grow in cities
- B) Different methods of plants to disperse their seeds
- C) How plants scatter their seeds to faraway islands
- D) How far plant seeds are able to travel
- E) The importance of plants' ability to move for their survival

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ANSWER KEY

1 C	21 E	41 E	61 D
2 E	22 B	42 B	62 C
3 D	23 B	43 B	63 B
4 B	24 C	44 D	64 C
5 D	25 B	45 D	65 B
6 B	26 C	46 B	66 A
7 C	27 A	47 A	67 B
8 A	28 E	48 A	68 A
9 B	29 D	49 C	69 D
10 C	30 C	50 E	70 A
11 C	31 E	51 C	71 E
12 A	32 A	52 E	72 C
13 A	33 C	53 C	73 A
14 C	34 D	54 E	74 D
15 C	35 E	55 A	75 E
16 A	36 A	56 D	76 D
17 E	37 A	57 C	77 C
18 A	38 D	58 C	78 C
19 A	39 B	59 C	79 A
20 B	40 D	60 E	80 B