

1. Almost all the major improvements to the United Kingdom's environmental ---- in recent decades, from clean beaches to plastic bags, came from the European Union.  
A) observations  
B) occupations  
C) distributions  
D) regulations  
E) confirmations
2. Thanks to a lack of protein in their muscle fibres, up to a fifth of people have ---- to low temperatures, which allows them to withstand extreme degrees of cold.  
A) appearance  
B) expansion  
C) resilience  
D) obligation  
E) fluctuation
3. Though the Amazon River boasts ---- biological richness, much of the river is either inaccessible or expensive to reach.  
A) deceptive  
B) remarkable  
C) cautionary  
D) ambiguous  
E) reversible
4. For many farmers, the use of genetically modified seeds is simply the continuation of the productive, high-tech approach to farming that has increased food production ---- over the past 20 years.  
A) spontaneously  
B) severely  
C) enormously  
D) offensively  
E) incidentally
5. Human activities are to blame for the increase in extinction rates, including increased resource consumption and climate change ---- by fossil fuel burning.  
A) triggered  
B) suspended  
C) relieved  
D) diminished  
E) implied
6. The continents that ---- most of the Earth's land surface are always on the move, shifted around by forces deep inside the Earth.  
A) find out  
B) depend on  
C) make up  
D) turn out  
E) put forward
7. The flowers of irises ---- as a yellow dye and, when mixed with iron sulphate, the roots produce a black dye that is black enough ---- as a printing ink.  
A) had been used / being used  
B) are being used / to have been used  
C) were used / using  
D) have been used / to be used  
E) will be used / having been used
8. Melting ice is a concern — if the entire Western Antarctic Ice Sheet ----, It ---- three-metre sea level rise, which is enough to cause serious flooding in many coastal areas.  
A) had melted / may result in  
B) melted / is going to result in  
C) were to melt / would result in  
D) can melt / resulted in  
E) would melt / results in

9. Many researchers are working ---- building computers that take inspiration ---- neurons in the brain.
- A) about / to  
B) over / by  
C) on / from  
D) into / for  
E) at / with
10. Most marine invertebrates have salinities ---- their bodies that are very similar to the salinity of the water ---- them.
- A) for / against  
B) on / into  
C) through / towards  
D) within / around  
E) from / behind
11. After the eruption of Mount St. Helens in 1980, a fine ash dust was propelled ---- upper atmosphere ---- heights reaching up to 22 kilometres.
- A) into / at  
B) toward / with  
C) along / from  
D) on / to  
E) over / around
12. The Amazon may be bigger and better known, --- it does not provide direct access to South America's most astonishing wildlife and scenery like the Orinoco does.
- A) and  
B) as  
C) so  
D) but  
E) instead
13. ---- antibiotics have greatly reduced the effects of infectious disease, their very success has led to the problem of resistant bacteria.
- A) While  
B) Unless  
C) In case  
D) Until  
E) Because
14. According to federal laws, US airports must be open 24 hours per day, 7 days per week, ---- there is another facility within the region which can take the traffic.
- A) unless  
B) as if  
C) once  
D) so  
E) given that
15. Most of the elements in the periodic table have symbols derived from their English name; ----, a few symbols have different sources.
- A) instead  
B) however  
C) therefore  
D) for instance  
E) in other words
16. The blue light-emitting diode, also known as LED lighting, has great promise in reducing energy costs and light pollution ---- it is so efficient and highly programmable.
- A) although  
B) because  
C) until  
D) unless  
E) so that

17. According to some researchers, the Earth has undergone a decline in mammal populations over the last century ---- human overconsumption and overpopulation.

- A) due to
- B) rather than
- C) contrary to
- D) despite
- E) for the sake of

18. ---- the use of pesticides and improved varieties of crops, fertilisers have greatly increased the quality and yield of such important foods as corn, rice, and wheat.

- A) Together with
- B) Regardless of
- C) In case of
- D) Unlike
- E) Instead of

19. If the waves breaking directly in front of a surfer or a swimmer are higher than four metres, the power of the water becomes ---- strong ---- it could pull everything along with it.

- A) so / that
- B) as / as
- C) either / or
- D) less / than
- E) whether / or

20. In 1990, the Hubble Space Telescope was launched into Earth's orbit, ---- it has allowed us to see things like dying stars and distant galaxies in detail.

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

The Great Lakes account for about 20 percent of the freshwater on Earth's surface. For perspective, That amount (21)---- the entire United States in nearly 10 feet of water. The lakes' geographical footprint is also hard to grasp. Their combined surfaces span more than 94,000 square miles, (22)---- the size of the United Kingdom. The presence of all that water was shaped by natural changes in Earth's climate through time. (23)----, the lakes now face unprecedented change, and this time, humans are behind it. The planet has warmed by an average of nearly 2 degrees Fahrenheit (one degree Celsius) since the 1880s. The Great Lake region is affected by this global trend: Within the basin, air temperatures have risen by an average of 1.6 degrees Fahrenheit (24)---- the first 80 years of the 1900s. And much of that warming has been concentrated in the winter months, pushing the ice ever closer to its melting point. Lake ice is an important (25)---- of climate change — and people have recorded it, in some cases, for centuries.

21.

- A) may have covered
- B) had to cover
- C) would cover
- D) used to cover
- E) must have covered

22.

- A) into
- B) with
- C) toward
- D) along
- E) about

23.

- A) For example
- B) Similarly
- C) Thus
- D) Yet
- E) In short

24.

- A) thanks to
- B) in place of
- C) by means of
- D) compared to
- E) with the help of

25.

- A) precaution
- B) privilege
- C) rejection
- D) deficiency
- E) indicator

In science, individual facts can be weak. No idea can be correctly called a proven scientific theory (26)---- it is confirmed by experiments or observations. For example, how do we know that the general theory of relativity is true? The general relativistic formulation of gravity predicts that light, as well as matter, will follow the path of space that is bent by massive objects. If the general theory of relativity was correct, then the light from distant stars would follow a curved path through space caused by the gravity of the Sun. The apparent positions of the stars in the part of the sky near the Sun's location, therefore, should be different from their apparent positions when the Sun is not in that place. (27)---- testing this prediction, British astrophysicist Arthur Eddington organised a major scientific expedition in 1919 to observe the sky. This was done purposefully (28)---- a solar eclipse. With the Moon (29)---- the Sun's bright light, astronomers measured the relative positions of distant stars near the Sun's position at that time. Then they compared them to those positions measured at night. The apparent positions were indeed different, and these differences were (30)---- with the results predicted by Einstein's theory. This observational confirmation of the general theory of relativity changed the field of physics forever.

26.

- A) provided that
- B) as though
- C) until
- D) since
- E) so that

27.

- A) With the aim of
- B) In spite of
- C) In addition to
- D) Instead of
- E) Regardless of

28.

- A) into
- B) against
- C) onto
- D) towards
- E) during

29.

- A) to have blocked
- B) blocked
- C) being blocked
- D) blocking
- E) to be blocked

30.

- A) destructive
- B) consistent
- C) fierce
- D) urgent
- E) prevalent

31. Although China burns more fossil fuels than any other country, ----.

- A) the average carbon footprint of each Chinese citizen is relatively small
- B) the main source of all carbon dioxide in the atmosphere is the burning of fossil fuels
- C) gases adding to the greenhouse effect are rarely released by natural processes
- D) the biggest consumers of fossil fuels are the US, China, and the EU
- E) some countries release a lot more carbon dioxide than others, partly because they are larger

32. The Internet has revolutionised the computer and communications world like nothing before ----.

- A) even if the main purpose of this network is to interconnect hundreds or, in some cases, thousands of small-sized and local area networks
- B) whereas the importance of the Internet is increasing and the strategies of constructing the infrastructure are becoming more and more critical
- C) while the design of the Internet architecture with a set of control and management strategies has been a focus of research in industry and academia
- D) although it has changed the lifestyles of humans by providing at once a worldwide broadcasting capability and a mechanism for information dissemination
- E) since it has provided a medium for collaboration and interaction between individuals and their computers regardless of geographic location

33. Some animal kinds are as soft as jelly, and hardly look like animals at all, ----.

- A) because some others have nerve cells, which keep their bodies coordinated
- B) just as an animal's body has millions or billions of cells that are divided into different types
- C) while many have much more complex bodies, with tough skeletons, keen senses and weapons, such as teeth, claws or stings
- D) as much as the animal kingdom contains plenty of creatures that spend their adult lives fixed in one place
- E) since most animals feed either on plants or on other animals based on leftovers or dead remains

34. Although the sounds and gestures made by some animals may serve functions comparable to those of human language, ----.

- A) wolves howl to let other pack members know where they are, and to tell rival packs to stay out of their territory
- B) communication also helps social animals such as wolves and bees. live and work in groups
- C) no other living being has developed a system of symbolic communication as complex as that of humans
- D) animal behaviourists agree that many creatures convey their fear through some instinctive reactions
- E) animals with high learning capacity and communication skills can be trained successfully

35. Instead of consuming other organisms to obtain the energy and the basic elements they need to live, grow, and reproduce, ----.

- A) some plants thrive in many habitats, becoming the basis of support for more complex organisms
- B) a number of environmental factors are responsible for the productivity of the photosynthetic cells in plants
- C) plants use the processes of photosynthesis to get energy and absorb vital elements from the environment
- D) a few exceptional species of plants get the energy that they need to survive by consuming other organisms
- E) plants have an important place in the natural world as a provider of food sources for other organisms

36. Coral reefs suffer from even small rises in ocean temperatures ----.

- A) because the heat reduces the quantity of algae on which the corals feed
- B) while the most species-rich ecosystems of the oceans are under threat
- C) although it is harder for the small creatures to build their calcium skeletons
- D) whereas some 89% of the world's biggest coral reef is thought to be affected
- E) even if the corals are affected by increased ocean acidity resulting from carbon dioxide emissions

37. Plague is mostly spread to humans when infected flea faeces are inadvertently scratched into the skin, ----.

- A) if fleas were to serve as alternate hosts of several tapeworms that can infect humans
- B) though fleas can generally survive for a long time without feeding, while waiting for a suitable opportunity to parasitise a host animal
- C) but transmission can also occur more directly while the fleas are feeding, or when a host accidentally ingests an infected flea
- D) so the human flea is an important pest of worldwide distribution that can be quite common in human habitations
- E) thus Bubonic plague is mostly a disease of rodents, which serve as a longer-term reservoir for this disease

38. Whereas the discovery of new dwarf planets has become relatively common, ----.

- A) a new major planet has not been identified since Neptune's discovery
- B) astronomers have searched for bacteria outside the Solar System
- C) the Kuiper Belt includes millions of pebbles and dwarf planets such as Pluto
- D) we must continue the journey towards the undiscovered outer bodies
- E) the theory of a ninth Solar System planet is based on computer simulations

39. ----, increases of carbon dioxide in the atmosphere might seriously harm human life and our cities before the end of this century.

- A) Since the damage in ozone layer can be observed thanks to the advances in technology
- B) If the governments and environmentalist organisations encourage the use of ozone-friendly products
- C) Even though there is a decreasing demand on eco-friendly products in the market
- D) Unless we change our consumption habits and reduce the present levels of greenhouse gases
- E) As long as the ozone layer in Earth's atmosphere protects us from harmful UV light from the Sun

40. Since negative impacts of desertification are confined to a given region and do not affect directly all countries, ----.

- A) it is characterised by a declining groundwater table and salt accumulation in topsoil and water
- B) it is often perceived differently from other global environmental problems
- C) the introduction of irrigation water has made cultivation possible in many new areas
- D) it is remarkable that many important food crops such as wheat originated in arid lands
- E) population growth in dryland areas has often been branded the primary reason for land degradation

41. No one knows exactly how many different types of living things exist on earth, ----.

- A) as all the world's plan and many of its microbes need carbon dioxide to grow
- B) otherwise our planet would not have an extraordinary diversity of species
- C) so the living world is increasingly threatened by human activity
- D) but scientists have identified more than 2.5 million species
- E) although there are many environments that support life, including the ocean floor

42. Famous for being one of the world's deadliest animals, the blue-ringed octopus is actually quite docile and spends most of its time hiding in shells.

- A) Dünyanın en ölümcül hayvanlarından biri olmasıyla bilinen mavi halkalı ahtapot, aslında vaktinin çoğunu deniz kabuklarının içinde saklanarak geçirdiği için oldukça uysaldır.
- B) Dünyanın en ölümcül hayvanlarından biri olmasıyla bilinen mavi halkalı ahtapot, aslında oldukça uysaldır ve vaktinin çoğunu deniz kabuklarının içinde saklanarak geçirir.
- C) Vaktinin çoğunu deniz kabuklarının içinde saklanarak geçiren mavi halkalı ahtapot, aslında oldukça uysaldır ancak dünyanın en ölümcül hayvanlarından biri olarak bilinir.
- D) Mavi halkalı ahtapot dünyanın en ölümcül hayvanlarından biri olarak bilinir ancak vaktinin çoğunu deniz kabuklarının içinde saklanarak geçirdiğinden aslında oldukça uysaldır.
- E) Aslında oldukça uysal olan mavi halkalı ahtapot, vaktinin çoğunu deniz kabuklarının içinde saklanarak geçirir, ancak dünyanın en ölümcül hayvanlarından biri olarak bilinir.



43. Cacao trees generally require high soil fertility, but they can also be cultivated in relatively poor soils if suitable methods like liming and fertilisation are used.

- A) Eğer kireçleme ve gübreleme gibi uygun yöntemler kullanılırsa, genellikle yüksek toprak verimliliğine ihtiyaç duyan kakao ağaçları nispeten verimsiz topraklarda da yetiştirilebilir.
- B) Kakao ağaçları genellikle yüksek toprak verimliliğine ihtiyaç duyar ama kireçleme ve gübreleme gibi uygun yöntemler kullanılırsa nispeten verimsiz topraklarda da yetiştirilebilir.
- C) Kakao ağaçları genellikle yüksek toprak verimliliğine ihtiyaç duysa da kireçleme ve gübreleme gibi uygun yöntemler sayesinde nispeten verimsiz topraklarda da yetiştirilebilir.
- D) Kakao ağaçları genellikle yüksek toprak verimliliğine ihtiyaç duyar, ancak kireçleme ve gübreleme gibi uygun yöntemler kullanılarak nispeten verimsiz topraklarda da yetiştirilebilir.
- E) Kakao ağaçları genellikle yüksek toprak verimliliğine ihtiyaç duyduğundan nispeten verimsiz topraklarda yetiştirilebilmesi için kireçleme ve gübreleme gibi uygun yöntemlerin kullanılması gerekir.

44. Alluvium is the product of sediment erosion, transportation, and deposition; therefore, its nature is governed by the sediment supply and sediment transport capacity of streams.

- A) Alüvyon, tortu erozyonunun, taşınmasının ve birikmesinin ürünüdür, bu yüzden alüvyonun niteliği akarsuların tortu miktarı ve tortu taşıma kapasitesi tarafından belirlenir.
- B) Tortu erozyonunun, taşınmasının ve birikmesinin ürünü olan alüvyonun niteliğini belirleyen şey, akarsuların tortu miktarı ve tortu taşıma kapasitesidir.
- C) Alüvyon; tortu erozyonunun, taşınmasının ve birikmesinin ürünüdür ve bu yüzden alüvyonun niteliğini akarsuların tortu miktarı ve tortu taşıma kapasitesi belirler.
- D) Tortu erozyonunun, taşınmasının ve birikmesinin ürünü olan alüvyonun niteliği, akarsuların tortu miktarı ve tortu taşıma kapasitesi tarafından belirlenir.
- E) Alüvyon; tortu erozyonunun, taşınmasının ve birikmesinin ürünü olduğu için alüvyonun niteliğini akarsuların tortu miktarı ve tortu taşıma kapasitesi belirler.

45. Although discovered by accident and then developed for purely scientific reasons, the scarce antibiotic called penicillin became a widely used drug during World War II.

- A) Az bulunan bir antibiyotik olan penisilin keşfedilmesi tesadüfidir ve daha sonra tamamen bilimsel nedenlerle geliştirilmiştir, ancak İkinci Dünya Savaşı sırasında yaygın olarak kullanılan bir ilaç haline gelmiştir.
- B) Tesadüfen keşfedilip sonrasında tamamen bilimsel nedenlerle geliştirilmiş olmasına rağmen penisilin adlı az bulunan antibiyotik, İkinci Dünya Savaşı sırasında yaygın olarak kullanılmış bir ilaçtır.
- C) Tesadüfen keşfedilmiş ve sonrasında tamamen bilimsel nedenlerle geliştirilmiş olsa da penisilin adlı az bulunan antibiyotik, İkinci Dünya Savaşı sırasında yaygın olarak kullanılan bir ilaç haline gelmiştir.
- D) Tesadüfen keşfedilmiş olmasına rağmen daha sonra tamamen bilimsel nedenlerle geliştirilmiş olan penisilin adlı az bulunan antibiyotik yaygın olarak kullanılan bir ilaca dönüşmesi, İkinci Dünya Savaşı sırasında gerçekleşmiştir.
- E) Penisilin adlı az bulunan antibiyotik tesadüfen keşfedilmiş olsa da daha sonra tamamen bilimsel nedenlerle geliştirilmiş ve İkinci Dünya Savaşı sırasında yaygın olarak kullanılan bir ilaca dönüşmüştür.

46. Because grasshoppers normally produce little body heat, they maintain appropriate body temperature by using heat gained from the environment.

- A) Çekirgeler normalde az miktarda vücut ısı ürettikleri için uygun vücut sıcaklığını çevreden edindikleri ısıyı kullanarak sağlarlar.
- B) Çevreden edindikleri ısıyı kullanarak uygun vücut sıcaklığını sağlayan çekirgeler, normalde az miktarda vücut ısı üretebilirler.
- C) Çekirgeler normalde az miktarda vücut ısı üretirler ve bu yüzden çevreden edindikleri ısıyı kullanarak uygun vücut sıcaklığını sağlarlar.
- D) Çekirgeler normalde az miktarda vücut ısı ürettiklerinden, uygun vücut sıcaklığını sağlamak için çevreden edindikleri ısıyı kullanırlar.
- E) Çekirgeler normalde az miktarda vücut ısı üretseler de çevreden edindikleri ısıyı kullanıp uygun vücut sıcaklığını sağlarlar.

47. Unless urgent action is taken to restrict the use of pesticides and to get rid of the accumulated waste, we can face environmental consequences that are serious and irreversible.

- A) Böcek ilaçlarının kullanımını sınırlandırarak birikmiş atıktan kurtulmak için acil eyleme geçilmediği müddetçe karşılaşacağımız çevresel sonuçlar ciddi ve tersine döndürülemez olacaktır.
- B) Böcek ilaçlarının kullanımını sınırlandırmak ve birikmiş atıktan kurtulmak üzere acil eyleme geçilmezse ciddi ve tersine döndürülemez çevresel sonuçlarla karşılaşabiliriz.
- C) Böcek ilaçlarının kullanımını sınırlandırıp birikmiş atıktan kurtulmak amacıyla acil eyleme geçilmediğinde ciddi ve tersine döndürülemez çevresel sonuçlarla karşılaşabiliriz.
- D) Böcek ilaçlarının kullanımını sınırlandırmak ve birikmiş atıktan kurtulmak için acil eyleme geçilmediği takdirde karşılaşacağımız çevresel sonuçlar ciddi ve tersine döndürülemez olacaktır.
- E) Böcek ilaçlarının kullanımını sınırlandırmanın ve birikmiş atıktan kurtulmanın yolu acil eyleme geçmektir ve bunu yapmadığımız müddetçe ciddi ve tersine döndürülemez çevresel sonuçlarla karşılaşabiliriz.

48. Arizona üniversitesinden bir grup araştırmacı, sıradan bir insanın ayakkabılarının dış yüzeyinde, aralarında bazı zararlı türlerin de olduğu yaklaşık 421.000 bakteri bulunabileceğini keşfetti.

- A) The number of harmful varieties of bacteria found on the outside of an ordinary person's shoes was discovered to be nearly 421,000 by a team of researchers from the University of Arizona.
- B) A team of researchers from the University of Arizona discovered that an ordinary person can find nearly 421,000 bacteria, which include harmful varieties, on the outside of their shoes.
- C) A team of researchers from the University of Arizona discovered that nearly 421,000 bacteria, including some harmful varieties, can be found on the outside of an ordinary person's shoes.
- D) What a team of researchers from the University of Arizona discovered was that on the outside of an ordinary person's shoes, almost 421,000 bacteria can be found, including some harmful varieties.
- E) A team of researchers from the University of Arizona discovered that out of almost 421,000 bacteria found on the outside of an ordinary person's shoes, some can be harmful varieties.

49. Bilim insanlarına göre, tarım yaklaşık 10.000 yıl önce insanların ilk defa buğday ve arpa yetiştirdikleri Yakın Doğu'nun verimli topraklarında başlamıştır.

- A) According to scientists, agriculture began about 10,000 years ago in the fertile soils of the Near East, where people first cultivated wheat and barley.
- B) According to scientists, agriculture began about 10,000 years ago, when people first cultivated wheat and barley in the fertile soils of the Near East.
- C) It is thought by scientists that agriculture began about 10,000 years ago in the, fertile soils of the Near East, where people first cultivated wheat and barley.
- D) According to scientists, agriculture began in the fertile soils of the Near East about 10,000 years ago as people started to cultivate wheat and barley.
- E) When people first cultivated wheat and barley about 10,000 years ago, agriculture began in the fertile soils of the Near East, according to scientists.

50. MÖ 2. yüzyılda yaşayan Yunan gök bilimci Hipparchus farklı parlaklıktaki yıldızlar hakkında kapsamlı yazılar yazan ilk insandı.

- A) The Greek astronomer Hipparchus lived in the 2nd century BCE and was the first person to write extensively about stars of different brightness.
- B) The Greek astronomer Hipparchus, who was the first person to write comprehensively about stars of different brightness, lived in the 2nd century BCE.
- C) The first person to write extensively about stars of different brightness was the Greek astronomer Hipparchus who lived in the 2nd century BCE,
- D) The Greek astronomer Hipparchus, who lived in the 2nd century BCE, was the first person to write extensively about stars of different brightness.
- E) It was the Greek astronomer Hipparchus who lived in the 2nd century BCE and first wrote comprehensively about stars of different brightness.

51. Louis Pasteur, şarbon ve kuduz gibi ölümcül hastalıkların tedavisinde büyük ilerlemeler sağlayarak milyonlarca hayat kurtardığı için 19. yüzyılın en saygın bilim insanlarından biriydi.

- A) Louis Pasteur, who saved millions of lives by providing great leaps forward in the treatment of deadly diseases such as anthrax and rabies, became one of the most respected scientists of the 19th century.
- B) Louis Pasteur became one of the most respected scientists of the 19th century, saving millions of lives by providing great leaps forward in the treatment of deadly diseases such as anthrax and rabies.
- C) Louis Pasteur was one of the most respected scientists of the 19th century as he saved millions of lives by providing great leaps forward in the treatment of deadly diseases such as anthrax and rabies.
- D) Louis Pasteur, who was one of the most respected scientists of the 19th century, saved millions of lives by providing great leaps forward in the treatment of deadly diseases such as anthrax and rabies.
- E) Louis Pasteur saved millions of lives by providing great leaps forward in the treatment of deadly diseases, such as anthrax and rabies, which made him one of the most respected scientists of the 19th century.

52. Meteorların ve uzay görevlerinde toplanan örneklerin bilimsel analizleri, Güneş sistemindeki nesnelerin oluşumları hakkında önemli bilgiler sağlar.

- A) Scientific analyses of meteorites and samples collected in space missions provide important information about the formation of objects in the Solar System.
- B) Scientific analyses of meteorites and samples collected in space missions are done so that important information about the formation of objects in the Solar System can be provided.
- C) When scientific analyses of meteorites and samples collected in space missions are done, important information about the formation of objects in the Solar System can be obtained.
- D) Important information about the formation of objects in the Solar System is obtained through scientific analyses of meteorites and samples collected in space missions.
- E) It is the scientific analyses of meteorites and samples collected in space missions that provide important information about the formation of objects in the Solar System.

53. Gece gökyüzündeki parlaklığına rağmen, bir kuyruklu yıldız, çapı sadece birkaç kilometre olan bir çekirdeğe sahiptir ve bu parlaklık çekirdekten yayılan toz, gaz ve iyonlardan gelmektedir.

- A) Although a comet is brilliant in the sky at night, its nucleus is only a few kilometres in diameter, and this brightness comes from the dust, gas and ions emitted from the nucleus.
- B) A comet is brilliant in the sky at night, and although it has a nucleus of merely a few kilometres in diameter, it is the dust, gas and ions emitted from the nucleus that create its brightness.
- C) While a comet is brilliant in the sky at night, its nucleus is only a few kilometres in diameter, and the dust, gas and ion, which are emitted from the nucleus, create its brightness.
- D) Despite its brilliance in the sky at night a comet has a nucleus of only a few kilometres in diameter, and this brightness comes from the dust, gas and ions emitted from the nucleus.
- E) In spite of its brilliance in the sky at night, a comet's nucleus is merely a few kilometres in diameter, and its brightness is created by the dust gas and ions emitted from the nucleus.

54. Nowadays, machine recognition of human faces is used in a variety of civilian and law enforcement applications that require reliable recognition of humans. Identity verification for physical access control in buildings or security areas is one of the most common face recognition applications. ---- Only if there is a match, access is permitted, e.g. the door opens. Face recognition systems are installed, for example, in airports to facilitate the crew and airport staff to pass through different control levels without having to show an ID or passport. Face identification is also used for government applications like national ID, driver's license, passport and border control, immigration, etc.

- A) It has long been used in forensic applications for criminal identification and surveillance of public places to detect the presence of criminals.
- B) Face verification may be used instead of electronic means like passwords or PIN numbers to allow secure transactions through the Internet.
- C) Face recognition is an integral part of wearable systems like memory aids or context-aware systems.
- D) A number of contemporary civilian and law enforcement applications rely on face recognition systems for security purposes.
- E) At the access point, an image of someone's face is captured by a camera and is compared with pre-stored images of the same person.

55. It is a good idea to plant what farmers call cover crop in the fall as part of your preparation for the following year. This is a crop that you do not intend to harvest. It is there simply to provide protection for the soil underneath, and you are preparing for your spring planting, you dig the whole crop into the soil. ---- Also, tilling it into the soil in spring will provide valuable organic matter to enrich the texture of the soil.

- A) Gardening is a satisfying occupation because you are constantly rewarded for your efforts.
- B) A cover crop will keep your precious topsoil from blowing or washing away.
- C) So much depends on climate that it is difficult to lay down specific directions for planting.
- D) Most farmers have to deal with insect problems at some time during this season.
- E) You still have a few more tasks to complete in order to put your garden to bed for the winter.

56. Most people agree that natural gas is the cleanest burning fossil fuel. ---- When natural gas is burned, it produces mainly water vapour and carbon dioxide. Although methane in natural gas is a more potent greenhouse gas than carbon dioxide, the actual amount released during processing is considerably small.

- A) The greenhouse gas amounts released from it are significantly lower than emissions from wood, coal, and oil.
- B) Because it is odourless, gas companies add a smell similar to rotten eggs for easy leak detection.
- C) In addition, it is most often found in association with crude oil or dissolved in the oil.
- D) The use of natural gas has increased dramatically since World War II.
- E) It was used almost exclusively as fuel for lamps in the 17th century.

57. The most famous case of science and technology ethics in the Nordic countries is the criticism of the Danish physicist and Nobel Prize winner Niels Bohr. Bohr was paradoxically one of the physicians participating in the 'Manhattan Project' during World War II that led to the creation of the nuclear bomb. ---- After he realised the deadly consequences of the use of nuclear bombs, Bohr became an active opponent of nuclear arms, and he sent several letters to the United Nations urging avoidance spread of nuclear mass destruction weapons and prevention of a nuclear war.

- A) When the United States was drawn into World War II in December 1941, the Manhattan Project was immediately established.
- B) Bohr said that it was only after the United States dropped the bombs on Hiroshima and Nagasaki that he fully became aware of the ethical responsibility of science.
- C) Einstein played no active part in the Manhattan Project and learned about the destruction of Hiroshima in the same manner as most people did.
- D) The Atomic Energy Commission was set up in 1946 to promote and control the development of nuclear energy in the United States after World War II.
- E) His Nobel Prize was never appreciated by his contemporaries as a result of his involvement in developing nuclear bombs for the sake of scientific progress.



58. Royal jelly is a thick creamy liquid secreted by special glands in young worker bees who serve as 'nurses' to the hive. All bee larvae are fed a small amount of royal jelly mixed with honey for the first three days of their lives. Starting on day four, however, most of the bees are weaned from this diet and develop into worker bees. But one bee, hatched from an egg identical to the rest, is fed exclusively on royal jelly. That bee becomes the queen and grows, on average, 40% larger than her fellow bees, and perhaps 50% heavier. ---- The complex substance has been found to be rich in amino acids, essential fatty acids, vitamins, minerals, RNA, DNA, and many other elements of clinically proven usefulness.

- A) The queen produces enormous numbers of eggs, equal to more than twice her own body weight, every single day.
- B) There has been enormous research on the major characteristics of worker bees.
- C) This phenomenon has led researchers to explore the chemical composition of royal jelly.
- D) Royal jelly is available as a liquid and may also be purchased in a freeze-dried form, combined with other bee products.
- E) Studies over the last several decades have reported a slight decline in the number of queen bees.

59. Materials like air, water, and clear glass are called transparent. When light encounters transparent materials, almost all of it passes directly through them. Glass, for example is transparent to all visible light. ---- If green light passes through a transparent object, the emerging light is green; similarly if red light passes through a transparent object, the emerging light is red.

- A) The sensation of white light is produced through a mixture of all visible coloured light
- B) When white light shines on an object it may be reflected, absorbed, or transmitted.
- C) The colour of a transparent object depends on the colour of light it transmits.
- D) Glass transmits most of the light that comes into contact with it thus it appears colourless.
- E) Most of the light is either reflected by the object or absorbed and converted to heat.

60. (I) Airplane emissions are a huge problem for the climate which is steadily getting worse. (II) To put this into perspective, if the aviation sector were a country, it would rank seventh worldwide in carbon pollution. (III) Furthermore, experts predict that aircraft emissions, on their current trajectory will triple by 2050 as demand for flights increases. (IV) New innovations in airplane design aim for greater fuel efficiency and lower emissions. (V) To prevent this dim scenario, a team of scientists at the Massachusetts Institute of Technology, along with government and industry collaborators, is attempting to fundamentally redesign airplanes.

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

61. (I) Wrapped around your body like a protective overcoat, your skin forms a barrier between the inside of your body and the outside world. (II) Cells in the base of the epidermis divide constantly, producing cells that move to the surface, flatten, and fill with a tough, waterproof protein called keratin. (III) Skin performs a vital role in keeping your body temperature at a steady 37°C. (IV) In hot conditions, dermis blood vessels widen to lose extra heat, and sweat evaporates from the skin to cool the body. (V) When it is cold, dermis blood vessels narrow to keep heat from escaping and tiny muscles put body hairs upright in an effort to trap warm air, lifting the skin into goosebumps.

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

62. (I) Recycling has many benefits: it saves money in production and energy costs, helps to conserve stocks of virgin resources, and so on. (II) The concept of recycling, which is a method of reusing that would be otherwise disposed, is not a new one. (III) At the turn of the 20th century, about 70 percent of the cities in the United States had programmes to recycle certain useful materials. (IV) During World War II, 25 percent of the waste stream was recycled and reused. (VI) In 1960, however, only 7 percent of the waste stream was recycled, but since the early 1970s, this has risen along with environmental consciousness, and the recycling rate was about 17 percent in 1990.

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

63. (I) In certain American cities, the appreciation of ornamental plants is a way of life, in both the private and public sectors. (II) People in these cities expect their parks not only to be clean and safe but also to be well landscaped. (III) It is interesting that one of the most common plants used in planted beds is seldom seen in home gardens. (IV) Boston, Vancouver, New York, Portland, and Seattle are all known as plant-friendly places for the public. (V) City planners and park planners complement private landscapers and architects in such cities, and people live better thanks to them.

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

64. (I) In the past, the only way to look inside the living body was to cut it open. (II) However, in 1895, X-rays were discovered, which paved the way for future imaging techniques. (III) Today, doctors have access to many imaging techniques that help them to diagnose diseases, so they can start treatment quickly. (IV) Doctors may order computed tomography scan for the pain that persists too long. (V) Many of these imaging techniques use computers to be able to produce clear, precise images of not just bones—as early X-rays did — but of soft tissues and organs as well.

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

65. (I) Over the last 50 years, many species of amphibians around the world have declined markedly in numbers. (II) In many instances, these declines are attributable to adverse human influences acting locally, such as deforestation and draining of wetlands. (III) Gradual declines in amphibian population have attracted a great deal of scientific interest, and yet, there is no reason to think that they are unusual. (IV) Since 1988, herpetologists from many parts of the world reported declines in amphibian populations in protected habitats where such local effects could not be blamed. (V) This suggests that there may be global factors that are affecting climatic and atmospheric changes and adversely affecting amphibians.

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

Instrumented buoys are unattended, floating structures equipped with systems for collecting, processing, and transmitting meteorological and oceanographic data on a regular basis. Such information is useful for many purposes, including storm warnings and forecasts, coastal engineering, climatology, and oceanographic and atmospheric research. In earlier times, merchant vessels supplied almost all our knowledge of ocean weather and climate. Ships continue to play a major role in reporting weather and surface conditions (waves, swell, and temperature), but the occasional nature of these observations, especially in the sparsely travelled Southern Hemisphere, makes it difficult to obtain a systematic picture of the state of the atmosphere and how it changes with time. Apart from limited estimates of surface currents through simple assumptions, ships in transit tell us nothing about the ocean. So, almost all our knowledge of ocean currents and their variability today comes from instrumented buoys, which measure ocean currents and related properties, particularly temperature. Moored systems, anchored to the ocean bottom, record currents and water properties as the flow passes the buoy. Drifting buoys move with the waters, indicating where they go. In both cases, additional sensors may record a variety of parameters, such as temperature, pressure, acceleration, and water properties.

66. According to the passage, instrumented buoys located in the oceans ----.
- A) are mainly reserved for oceanographers and climatologists
  - B) can autonomously prepare weather reports for the oceans and broadcast them
  - C) gather data about the weather and the ocean environment periodically
  - D) mostly process the collected data several times before sharing such data
  - E) are often monitored by protective systems and scientists responsible for them

67. Which of the following is the main drawback of data from ships travelling in the oceans?
- A) It takes quite a long time for them to collect and transmit data to scientists and others in charge of monitoring oceans
  - B) The data from ships are usually concerned with the state of currents under the water, so this might not be useful for weather forecasts.
  - C) They might be of low quality as most of them are collected by commercial ships travelling in the deep waters of the world.
  - D) As ships carry people and goods and directly travel from one place to another in a short time, the data might be small and irrelevant.
  - E) The data collection is far from being methodical, particularly because not every part of the oceans is visited frequently.
68. Which of the following is the main idea of the passage?
- A) Instrumented buoys are quite useful devices employed for monitoring the weather and environmental conditions in the oceans.
  - B) Although ships wandering around in the oceans of the world provide some data about the oceans, such data may not be adequate.
  - C) With their stationary and moving versions, instrumented buoys measure ocean temperature and share such information with ships nearby.
  - D) Ships and buoys are two sources of data used for issuing warnings about possible dangers and problems that might emerge in the oceans.
  - E) Ships help collect highly accurate data used by a wide variety of scientists, yet the data from buoys are hardly usable as they are less accurate.

Does your dog know what you are thinking? Can a chimpanzee understand what another sees? In the three and a half decades since David Premack and Guy Woodruff first asked whether chimpanzees have a 'theory of mind', a considerable empirical and philosophical literature has sprung up around what has come to be called 'mind reading' in animals. Theory of mind, as Premack and Woodruff defined it, is the ability to attribute perceptual and cognitive states to others. This is not about telepathy, but about whether any animal besides humans have the capacity to attribute such states to others. Numerous experimental tests and other observations have been offered in favour of animal mind reading, and although many scientists are sceptical, others assert that humans are not the only species capable of representing what others do and do not perceive and know.

69. According to the passage 'theory of mind' is described as the ----.

- A) ability to address an empirical and philosophical question
- B) ability to assign perceptual and cognitive states to others
- C) capacity to interpret what others may perceive using telepathic skills
- D) capacity to imagine what other species visualise without sharing it
- E) ability to represent a concept in different situations and contexts

70. Which could be understood from the passage?

- A) While some scientists think that mind reading ability is not unique to humans, there are those who have doubts about the existence of this ability in animals.
- B) Premack and Woodruff developed the notion of 'theory of mind' after they studied the results of the tests and observations conducted by other scientists.
- C) How humans use telepathy to perceive what others think or see is very similar to how animals perform mind reading.
- D) Most of the experimental tests carried out to prove the mind reading ability in animals have been conducted on chimpanzees.
- E) Although many studies were done on animals to reveal mind reading ability, none of them were as successful as that of Premack and Woodruff.

71. What is the passage mainly about?

- A) Different animals that have been proven to have the ability of mind reading
- B) Mind reading in chimpanzees, which are among the few animals aware of what others see
- C) The debate over whether animals can represent what others perceive and know
- D) Experimental observations that have been carried out to support animal mind reading
- E) Premack and Woodruffs study on mind reading in chimpanzees

The Greeks were the first to theorise about the nature of light. Led by the scientists Euclid and Hero (first century AD), they came to recognise that light travelled in a straight line. However, they believed that vision worked by intromission; that is, light rays originated at the eye and travelled to the object being seen. Despite this erroneous hypothesis, the Greeks were able to successfully study the phenomena of reflection and refraction and derive the laws governing them. In reflection, they learned that the angles of incidence and reflection were approximately equal; in refraction, they saw that a beam of light would bend as it entered a denser medium (such as water or glass) and bend back the same amount as it exited. The next contributor to the science of optics was the Arab mathematician and physicist Alhazen (965-1039), who is sometimes called the greatest scientist of the Middle Ages. Experimenting around the year 1000, he showed that light comes from a source (the Sun) and reflects from an object to the eyes, thus allowing the object to be seen. He also studied mirrors and lenses and further refined the laws of reflection and refraction.

72. It can be concluded from the passage that the Greeks failed to understand ----.

- A) the laws of physics governing the notions of reflection and refraction
- B) that the light came from a source and reflected from an object to the eyes
- C) how light travelled in a straight line and the way intromission worked
- D) how a light ray would reflect from a surface, considering the mirror had not been invented yet
- E) that a beam of light would bend as it entered a denser medium such as water or glass

73. Which can be understood from the passage?

- A) Alhazen initially thought that vision worked by intromission, but of he studied mirrors and lenses, he recognised that light reflects from an object to the eyes
- B) Alhazen proposed a new hypothesis about the phenomena of reflection and refraction as he believed that the one developed by the Greek was erroneous.
- C) While many scientists formulated theories about the nature of light in the Middle Ages, it was Alhazen who successfully defined the phenomena of reflection and refraction.
- D) The most successful scientific experiments about light were carried out in the Middle Ages by various physicists inspired by Greek scientists.
- E) Although Greek scientists were wrong about the origin of light, they studied the phenomena of reflection and refraction in an accurate way.

74. What is the primary purpose of the author?

- A) To inform the reader about the history of theories on light
- B) To compare the theories of Greek and Arab scientists on light
- C) To explain the major differences between reflection and refraction
- D) To focus on Greek scientists' achievements in physics
- E) To draw attention to Alhazen, who disproved Euclid and Hero's theory on light

While we know that some marine animals seem to eat plastic because it looks like jellyfish or some other food source, less research has been carried out into what plastic smells like to these creatures. But now a study from the University of North Carolina has found that the coating of algae and microbes that naturally builds up on ocean plastic causes it to give off the aroma of food. The researchers took 15 captive-reared loggerhead turtles, each around five months old, and placed them in a laboratory aquarium. They then piped in aromas of clean water, clean plastic, turtle food, and plastic that had been soaking in the marine environment for five weeks. The turtles showed no reaction to the odours of clean water or clean plastic. But when they were exposed to the smells of ocean-soaked plastic or turtle food, they exhibited foraging behaviour — like poking their noses out of the water and showing increased activity. Regarding this study, it can be noted that areas of the ocean with dense concentrations of plastic may trick turtles and other animals into thinking that there is an abundant food source, when the reverse is true. Therefore, researchers state that the best way to handle this problem is to keep plastic from getting into the ocean at all.

75. According to the passage, the researchers ----.

- A) included turtles from different age groups in the study to confirm the validity of their theory
- B) observed that turtles displayed more foraging behaviour when they were in the ocean
- C) used clean water to justify the importance of clean water in the diet of turtles
- D) ruled out the preconception that turtles become more active when they are in their natural habitat
- E) used plastic soaked in the ocean for weeks to observe whether turtles would show a different reaction

76. Which could be concluded based on the findings of the study?

- A) We need to provide an abundant supply of food for the conservation of turtles.
- B) Variety of food sources may diminish the negative effects of plastic in oceans.
- C) Dense concentrations of plastic may misdirect turtles into areas where there are not many food sources for them.
- D) Turtles tend to react differently to plastic compared to other marine animals.
- E) The density of the plastic may force turtles and other animals to change their habitats.

77. What is the passage mainly about?

- A) Conservation of loggerhead turtles and other sea animals
- B) The reason why marine animals fail to differentiate between ocean plastic and food
- C) Research on how to reduce the negative effects of plastic waste
- D) Foraging behaviour of captive-reared loggerhead turtles
- E) An alternative solution to handle the problem of ocean plastic

Carnivorous plants are botanical oddities that supplement their requirement for nutrients by trapping, killing, and digesting small animals, mostly insects. Carnivorous plants have long been fascinating to humans. They have the subject of some captivating tales of science fiction, involving fantastic trees that consume large creatures in tropical forests. Tales have even been told about ritual sacrifices of humans to these awesome carnivores, presumably to calm evil, botanical spirits. Fortunately, fact involves much smaller predators than those of science fiction. The usual prey of these green predators is not deer, cattle, or humans, but insects and other small-invertebrates. Contrary to some portrayals in science fiction, the flowers of carnivorous plants are not the organs that catch their prey. Rather, in all cases the deadly traps are modified leaves and stems. The traps of carnivorous plants attract their prey using various machinations, including colour, scent, and nectar. Once a victim is suitably within, the trap rapidly closes, preventing the escape of the prey. Mechanical stimuli from the struggling victim trigger the synthesis and excretion of digestive enzymes onto the inner surface of the trap, which facilitate digestion of the prey.

78. According to the author, the acts of carnivorous plants ----.

- A) are explained in detail in science fiction so as to frighten people
- B) are a major risk for larger animals that are not aware of their potential dangers
- C) are difficult to categorise since they do not feed on same kind of species
- D) have been a much exaggerated issue in creative works of literature
- E) mostly have to do with how humans disrupt the order in wildlife

79. Which of the following is a misconception mentioned in the passage about carnivorous plants?

- A) Their preys are mostly small animals including invertebrates.
- B) They take a long time to digest their preys without synthesis.
- C) Their preys mostly get trapped in their flower parts.
- D) They grab attention of their preys by scent, colour, and nectar.
- E) They immediately block the way out for once they capture their preys.

80. Which of the following could be the primary purpose of the author?

- A) To discuss why certain plants feed on animals
- B) To exemplify the machinations that carnivorous plants use to catch their prey
- C) To inform the reader about different kinds of carnivorous plants
- D) To comparatively explain the place of carnivorous plants in botany and science fiction
- E) To clarify why carnivorous plants are indeed tightening predators



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21. C	22. E	23. D	24. D	25. E	26. C	27. A	28. E	29. D	30. B
31. A	32. E	33. C	34. C	35. C	36. A	37. C	38. A	39. D	40. B
41. D	42. B	43. B	44. A	45. C	46. A	47. B	48. C	49. A	50. D
51. C	52. A	53. D	54. E	55. B	56. A	57. B	58. C	59. C	60. D
61. B	62. A	63. C	64. D	65. C	66. C	67. E	68. A	69. B	70. A
71. C	72. B	73. E	74. A	75. E	76. C	77. B	78. D	79. C	80. D