

1. The intricate interplay, characterized by the subtle nuances and multifaceted interactions among genetic variations, underscores the inherent ---- of human diversity.

- A) divergence
- B) ubiquity
- C) ambiguously
- D) intricacy
- E) resilience

2. Biologists have ingeniously devised a molecular compound which ---- the intricate synaptic connections between neurons, akin to the structural reinforcement provided by steel bars within reinforced concrete.

- A) overcomes
- B) fortifies
- C) penetrates
- D) receives
- E) implements

3. As the internet becomes more pervasive, individuals are increasingly ---- cyberchondria, a psychological condition exacerbated by the ease of accessing medical information online, leading to heightened health-related anxiety.

- A) overcomes
- B) fortifies
- C) penetrates
- D) receives
- E) implements

4. If a chapter in European history were to be truly characterized as 'epochal', it ---- the tumultuous decades that ---- the fall of the Western Roman Empire and the subsequent migration period.

- A) may be / follow
- B) used to be / had followed
- C) had to be / were following
- D) must be / have followed
- E) might be / followed

5. Artifacts recently unearthed in a remote region of Africa ---- to 100,000 years ago - a staggering revelation that ---- what was previously believed that humans had settled in the area.

- A) were carbon-dated / predated
- B) are carbon-dated / would have predated
- C) have been carbon-dated / predates
- D) had been carbon-dated / has predated
- E) will be carbon-dated / will predate

6. The scientific exploration of the intricate interplay ---- celestial bodies within the solar system and the trajectories of human-made entities ---- the expansive realm of outer space, including spacecraft and satellites, is termed orbital mechanics.

- A) with / of
- B) between / at
- C) about / on
- D) beyond / without
- E) among / in

7. ---- all dogs exhibiting indications of possessing a 'theory of mind,' allowing them to understand that humans have different thoughts, it is improbable that they can extend this to comprehending why individuals behave differently from one another.

- A) In case of
- B) Because of
- C) Despite
- D) In the light of
- E) In contrast to

8. The Mars environment is exceptionally harsh compared to Earth, so we're not actively seeking evidence of current life and ----something physically moves in front of the cameras, detecting such life is improbable.

- A) if
- B) unless
- C) just as
- D) because
- E) whereas

9. Because of their cognitive limitations, preschoolers primarily view situations from their own perspective; - ---, they may struggle to grasp the multitude of reasons behind their parents' divorce, often leading them to mistakenly believe they are at fault.

- A) consequently
- B) however
- C) on the other hand
- D) in other words
- E) instead

Colliding tankers, damaged platforms and pipelines, as well as the release of residual oil from oil tanks, are potential causes for catastrophes. Pictures of dying seabirds show the **(10)**---- of such environmental damage. Yet, not all environmental hazards are this obvious. Water pollution **(11)**---- by the uncontrolled use of pesticides and heavy metals, such as mercury, lead, cadmium, and zinc, largely remains unnoticed. The dangerous prior assumption that oceans could naturally purify themselves **(12)**---- limit has caused possibly irreparable damage. Not only the oceans, but many creeks, rivers, and lakes have also suffered from human interference. Many lakes have become polluted **(13)**---- the chemicals added by household wastewater and the overfertilisation with phosphates in agriculture. **(14)**----, unknown effluents from industry and acid rain add to the acidification of water bodies, which contributes to the decrease of biodiversity.

10. A) improvement B) extent
C) suspension D) eradication
E) release
11. A) having triggered B) triggering
C) to have been triggered D) triggered
E) to have triggered
12. A) from B) upon
C) against D) for
E) without
13. A) except for
B) because of
C) contrary to
D) rather than
E) in pursuit of
14. A) For instance B) Therefore
C) Even so D) Moreover
E) Instead

Media multitasking, **(15)**---- scrolling through social media while watching a movie, may be linked to more lapses in attention and difficulty remembering things. "Our data support the idea that we should be aware of how we engage with media," says Kevin Paul Madore at Stanford University in California. He and his team compared people's self-reported levels of media multitasking **(16)**---- their performances in a memory task, as part of a study including 80 participants aged 18 to 26. The researchers specifically tested episodic memory, which helps us **(17)**---- events, by presenting the participants with images of objects on a computer and then later asking them to recall **(18)**---- they had seen the objects earlier. At the same time, the team used EEG and eye tracking to monitor people's attentiveness. Madore and his colleagues also asked participants to complete a questionnaire **(19)**---- how often they engage in various forms of media multitasking, such as texting while watching TV or reading while listening to music. They found that people who reported more frequent media multitasking had more lapses in attention during the memory task, which was associated with increased difficulties with remembering.

15. A) rather than B) despite
C) because of D) as well as
E) such as
16. A) towards B) with
C) onto D) in
E) beyond
17. A) realize B) acknowledge
C) surpass D) recall
E) enhance
18. A) unless
B) because
C) whether
D) in case
E) although
19. A) to determine
B) being determined
C) to have determined
D) to be determined
E) determining

Imagine if, when a pandemic swept across the globe, scientists responded quickly to develop effective vaccines only for a small number of wealthy countries to buy up almost the entire global supply, leaving virtually none (20)---- the rest of the world. That is (21)---- what happened in 2009 with the H1N1 flu pandemic. We (22)---- it to happen again with covid-19. In some ways we got lucky with H1N1: the virus became less virulent over time and vaccine supplies eventually increased enough to be included in the seasonal flu shot, enabling more people to get access. The jury is still out on whether something similar will happen with the coronavirus, but, either way, a return to normality will continue to elude us (23)---- people in all countries are protected. Thankfully, we now have several vaccines, (24)---- to end this crisis there must be rapid, fair and equitable access to them, particularly for those people living in the world's poorest countries, which are most in danger of missing out.

20.

- | | |
|------------|---------|
| A) over | B) from |
| C) towards | D) for |
| E) on | |

21.

- | | |
|---------------|-----------------|
| A) accurately | B) severely |
| C) closely | D) deliberately |
| E) precisely | |

22.

- A) may not allow
B) should not have allowed
C) don't have to allow
D) did not have to allow
E) must not allow

23.

- A) so that
B) if
C) because
D) until
E) when

24.

- | | |
|----------------------|----------------|
| A) meanwhile | B) in addition |
| C) therefore | D) in fact |
| E) on the other hand | |

Been spending a bit too much time indoors? You are not the only one. Many of us now spend up to 90 per cent of our lives indoors and our retinas are bombarded with artificial light late into the evening. That means (25)---- our ancestors, we are exposed to less light during the day and more light at night. This (26)---- to the light-dark cycle we (27)---- with is having a profound effect on our circadian rhythms, shifting sleep patterns and affecting our health way more than we might realise. Light levels help to regulate alertness and mood. We also rely on sunlight to convert cholesterol in the skin into vitamin D, which helps build strong bones, and plays a beneficial role (28)---- our immune system. Some headlines even suggest that sunlight could and help protect us from the coronavirus. (29)---- we are not sure whether the science back that up.

25.

- | | |
|-------------------|------------------|
| A) in addition to | B) therefore |
| C) in short | D) compared with |
| E) yet | |

26.

- | | |
|-----------------|----------------|
| A) perseverance | B) disruption |
| C) interference | D) maintenance |
| E) prevention | |

27.

- | | |
|-----------------|-----------------|
| A) had evolved | B) are evolving |
| C) would evolve | D) evolved |
| E) will evolve | |

28.

- A) among
B) about
C) for
D) with
E) in

29.

- | | |
|-------------------|--------------|
| A) Hence | B) Moreover |
| C) Yet | D) Similarly |
| E) In other words | |

Climate change will increase the risk of heavy rainfall and storm surges combining to cause extreme flooding around the UK, Germany and other parts of northern Europe. Coastal communities already face the (30)---- of a worst-case average sea level rise of about a meter by the end of the century, (31)---- temperatures rise. But Emanuele Bevacqua at the University of Reading, UK, and his colleagues found the risk from rising seas may be aggravated further (32)---- compound flooding, where heavy rainfall and storm surges occur simultaneously (33)---- greater impact. The results don't account for defenses and local topography, (34)---- Bevacqua says the potential hazard from compound flooding should still be factored into risk assessments for coastal communities. Today, the greatest risk of such floods in Europe is in the south.

30. A) prospect B) violation
C) obstacle D) urgency
E) ambiguity

31. A) unless B) whereas
C) before D) so that
E) as

32. A) in B) on
C) over D) by
E) at

33. A) having B) to have
C) to have had D) to be had
E) being had

34. A) therefore B) instead
C) but D) otherwise
E) on the contrary

Humans have known about electricity for millennia, (35)---- it was not until Benjamin Franklin that we started understanding more about this energy source. Franklin, with his work in the mid-1700s, is credited (36)---- furthering understanding of electricity and establishing a foundation for other scientists and inventors. Later, in 1831, British scientist Michael Faraday (37)---- the basics of electricity generation. (38)---- in the 1870s, Thomas Edison mastered electricity for lighting and started a wave of invention and industry that would (39)---- bring electricity to everyday consumers.

35. A) so B) but
C) as D) nor
E) thus

36. A) off B) on
C) with D) under
E) at

37. A) was discovering B) had discovered
C) has discovered D) used to discover
E) discovered

38. A) Starting B) To start
C) To have started D) Being started
E) Started

39. A) successively B) eventually
C) mutually D) predominantly
E) drastically

In this age of globalisation, you would expect people to value and be sensitive about their local differences and diversity. And few areas could be more critical than different peoples' understanding of the human mind when it comes to mental health and illness. **(40)**----, a Nigerian man might experience a culturally distinct form of depression by describing a "peppery" feeling in his head, **(41)**---- a Chinese farmer might speak only of shoulder or stomach aches. Salvadorean women refugees **(42)**---- psychological trauma after a long civil war, **(43)**----, often experience something called *calorias*, a feeling of intense body heat. For a long time, psychiatrists and medical anthropologists studying mental illness in different cultures have found that mental illnesses are not **(44)**---- distributed globally, and do not take the same form from place to place. Unfortunately, mental health professionals in the US, who dominate the global discussion about how mental illnesses are categorised and treated, have often ignored or dismissed these differences.

40.

- | | |
|----------------------|----------------|
| A) On the other hand | B) However |
| C) Similarly | D) For example |
| E) Otherwise | |

41.

- | | |
|---------------|------------|
| A) given that | B) just as |
| C) while | D) in case |
| E) so that | |

42.

- | | |
|-------------------|--------------|
| A) to suffer | B) suffered |
| C) being suffered | D) suffering |
| E) to be suffered | |

43.

- | | |
|----------------------|----------------|
| A) therefore | B) fortunately |
| C) in other words | D) in short |
| E) on the other hand | |

44.

- | | |
|---------------|---------------|
| A) adequately | B) closely |
| C) evenly | D) peculiarly |
| E) harmfully | |

Today's children are growing up in an environment dominated by screens. Whether it is learning in school **(45)**---- computer or tablet use, relaxing at home with video games and TV, or communicating with friends on their phones and social media, time **(46)**---- on screens has become an essential part of modern life. **(47)**---- this, much has been made in the media about the alleged dangers of screen time and the risks that it **(48)**---- to our young people's health, but this screen time panic isn't new. People have been voicing concerns about the harms of spending too much time on screens since the invention of television. The truth is the evidence for direct harm by screen time has always been contested. Although existing research demonstrates negative associations between screen time and mental health, sleep and fitness, we cannot be confident that these links are causal, or whether other factors are causing both negative health outcomes and higher screen time. **(49)**----, some more recent high-quality studies show that some screen time is better for mental health than none at all.

45.

- | | |
|------------|-------|
| A) over | B) on |
| C) with | D) in |
| E) through | |

46.

- | | |
|-----------------------|----------------|
| A) to have been spent | B) spending |
| C) to spend | D) to be spent |
| E) spent | |

47.

- | | |
|----------------|-------------------|
| A) Because of | B) Along with |
| C) Despite | D) In contrast to |
| E) Rather than | |

48.

- | | |
|---------------|---------------|
| A) heralds | B) eliminates |
| C) spurs | D) poses |
| E) fascinates | |

49.

- | | |
|-----------------|-----------|
| A) Consequently | B) Thus |
| C) In fact | D) Rather |
| E) Ironically | |

A dazzling fireball that ended its cosmic journey over central Alberta, Canada could change astronomers' understanding of how the solar system formed 4.5 billion years ago. The meteoroid is thought to have come from the Oort Cloud, a reservoir of celestial objects that encircles the entire solar system and separates it from interstellar space. Scientists have never directly observed rocky objects in the Oort Cloud and have believed that it holds only icy objects. But the new rocky object challenges popular theories of the Oort Cloud's formation, and the early solar system's formation in general, according to a recently published study. "This discovery supports an entirely different model of the formation of the solar system, one which backs the idea that significant amounts of rocky material co-exist with icy objects within the Oort cloud," study author Denis Vida said in a statement. "This result is not explained by the currently favoured solar system formation models. It is a complete game changer." NASA has assumed the Oort Cloud formed when gravity from the newly formed planets pushed icy objects away from the sun. Gravity from the Milky Way galaxy caused the objects to settle on the edge of the solar system instead. A popular current theory about how the solar system formed is the pebble accretion model, which describes millimetre-size pebbles being sucked together over time to form celestial bodies. "These findings challenge solar system formation models based on pebble accretion alone, which currently cannot explain the high observed abundance of rocky material in the Oort cloud as derived from fireball measurements and telescopic data," the authors wrote.

50. It is clear from the passage that the meteoroid that ended its journey over Canada ----.

- A) has added nothing new to the present theories about the Milky Way galaxy
- B) was much bigger than the ordinary ones and provided more information
- C) was an icy object that can only be found in the Oort Cloud
- D) is assumed by scientists to have originated in Oort Cloud
- E) is important in that it has confirmed the current theory about the formation of Oort Cloud

51. Which of the following can be inferred from the passage about the recently published study?

- A) It may change NASA's assumptions about the formation of Oort Cloud.
- B) It claims that the meteoroid contains both ice and rock particles.
- C) It has basically similar claims to the previous research about the formation of Oort Cloud.
- D) Its results are totally in line with the pebble accretion model.
- E) It might spark a new controversy about NASA's credibility.

52. Which of the following can replace the underlined verb 'accretion' in the passage?

- A) reflection
- B) diminishment
- C) punishment
- D) accumulation
- E) reduction

53. Which of the following best describes the writer's tone?

- A) critical
- B) humorous
- C) informative
- D) provoking
- E) conciliatory

54. ----, therefore tropical forests have suffered the most, with some of the highest rates of agricultural conversion over the last few decades.

- A) The tropical domain has the largest proportion of the world's forests
- B) People have converted nearly half of the world's land into agriculture
- C) Agriculture was the key development in the rise of sedentary human civilization
- D) Tropical forests are some of the richest, most exciting areas on earth
- E) About 80% of the world's documented species can be found in tropical rainforests

55. Oil produced from biomass can provide a sustainable alternative to fossil fuels, ----.

- A) so such organisms and their resulting fossil fuels typically have an age of millions of years
- B) for they contain high percentages of carbon and include petroleum, coal, and natural gas
- C) but technological challenges make it difficult to scale up production
- D) yet it is a kind of liquid fuel made from biomass materials such as municipal wastes
- E) even if biomass crops are distributed abroad in the world and the amount is very large

56. The Netherlands has developed an ingenious system for keeping the sea at bay, part of which are the Kinderdijk Windmills, ----.

- A) unless the local authorities decide that they needed to pump water into a local reservoir to protect the polders
- B) even though a millennium ago, the area around Kinderdijk was a peat bog only visited by fishermen
- C) however, it is the largest concentration of old windmills in the Netherlands and one of the best-known Dutch tourist sites
- D) since much of the country was once underwater and still remains at risk of being inundated by the sea
- E) but these windmills are built out of brick, they have windows and are about 30 m high on average

57. ----, others are at greater risk than before.

- A) Because the world locks down to avoid further spread of the devastating coronavirus
- B) Though endangered species are experiencing more poaching during coronavirus lockdowns
- C) Whereas it is of paramount importance that some biologists continue collecting data even during lockdowns
- D) Since Earth is currently in its sixth known extinction event, and our co-existence with wildlife leaves much to be desired
- E) While current lockdowns around the world have left some animals thriving in peace and quiet

58. Even though a yellow fever vaccine has been available since the 1930s, ----.

- A) it halted progress on the Panama Canal in the 1900s and shaped the history of Atlantic coast cities from Philadelphia to Rio de Janeiro
- B) the disease, transmitted by mosquitoes, continues to afflict 200,000 people a year, a third of whom die, mostly in West Africa
- C) the virus that causes it lives in primates and is spread by mosquitoes that tend to dwell high in the canopy where these primates live
- D) shrinking habitat has been shown to concentrate howler monkeys – one of the main South American yellow fever hosts
- E) yellow fever outbreak was reported for the first time in in Kenya, where deforestation had fragmented the forest

59. Unless accommodations are built into autonomous vehicle designs ----.

- A) companies risk undermining transportation access for the very communities this technology is promising to include
- B) autonomous vehicles could improve access to transportation for every individual that they demand
- C) for individuals in emergency situations, the driver bridges the gap between personal capability and vehicle accessibility
- D) synchronizing vehicle movement with distance and traffic patterns would result in more efficient service
- E) these advances should mean fewer cars, less traffic, more economical fuel use and increased vehicle availability

60. Even if no one knows when the first printing press was invented or who invented it, ----.

- A) the printing press is a device that allows for the mass production of uniform printed matter
- B) it revolutionized society there before being further developed in Europe in the 15th Century
- C) the oldest known printed text originated in China during the first millennium A.D.
- D) it was during this period of early printing that rolled-up scrolls began to be replaced by books
- E) the first moveable type was carved into clay and baked into hard blocks that were then arranged onto an iron frame

61. Organic agriculture provides more rural employment opportunities ----.

- A) since the difference in the nutritional value of organic and conventional food is so small
- B) for organic ingredients most likely have slightly higher levels of some vitamins
- C) though organic food is more expensive than conventional food at present
- D) as it pays higher wages and offers better working conditions than conventional farms
- E) because organic management is more labor-intensive than conventional practices

62. Although botanical gardens remain significant for recreation and education, ----.

- A) the arrangement of the botanical garden must balance an aesthetic presentation with educational purposes
- B) they may specialize in local flora or present plants from around the world, within the limits of the local soil and climate
- C) the most important trend in them worldwide has been an increasing awareness of their potential to assist in conservation efforts
- D) American botanical gardens, especially those further north, must account for seasonal changes in planning their design
- E) The urbanization of the American landscape in the twentieth century has increased the prominence and viability of botanical gardens

63. As the demand for health-care services continues to increase, ----.

- A) the advanced technology used in these surveillance systems has provided a significant amount of physiological data
- B) even the most modern patient monitoring systems carry significant drawbacks that limit their effectiveness and/or applicability
- C) major opportunities for improvement in both equipment design and monitor utilization have been identified
- D) clinically efficient and cost-effective patient monitoring takes on a critically indispensable role
- E) clinical alarm activity can affect patient safety and may have a negative impact on care providers

64. As harmful bacteria are becoming ever more resistant to antibiotics, ----.

- A) the use of new drugs has started to yield positive results
- B) as many as 500 new drugs will have been produced to fight off viruses by then
- C) doctors have, in turn, started to use phages – viruses that infect bacteria – as a new line of attack
- D) the developments in the pharmaceutical industry have seen a decline
- E) antibiotic resistance had already become a serious issue affecting millions of people

65. Jupiter has four large moons, called the Galilean satellites because they were discovered by Italian astronomer Galileo in 1610. Since Io is the closest moon to Jupiter, tidal effects squeeze the moon like a rubber ball, heating the interior. ---- Io's volcanoes were discovered by the American Probe Voyager 1 in 1979, making the moon the first place beyond Earth where active volcanoes were observed. These eruptions are so numerous that Io is entirely resurfaced every few millennia.

- A) Europa is another of the Galilean satellites, but it is covered by ice.
- B) This energy is released in spectacular volcanic eruptions of silicate lava.
- C) The rings of Saturn are one of the most distinct planetary features in the solar system.
- D) Jupiter has been known to ancient civilizations since before recorded history.
- E) Io played a significant role in the development of astronomy in the 17th and 18th centuries.

66. Egyptian catacombs are famously filled with the mummified bodies of Sacred Ibises. Between around 664BC and 250AD, it was common practice for the birds to be sacrificed, or much more rarely worshipped in ritual service to the god Thoth, and subsequently mummified. In ancient sites across Egypt, these mummified birds are stacked floor to ceiling along kilometers of catacombs, totaling many millions of birds. ---- Some ancient texts indicate that long-term farming and domestication may have been employed.

- A) Thus, ancient Egypt, civilization in northeastern Africa that dates from the 4th millennium BCE.
- B) In fact, they were dependent on the annual inundation of the Nile River to support its agricultural population.
- C) But how the Egyptians got access to so many birds has been a mystery.
- D) However, birds pervaded the ancient world, impressing their physical presence.
- E) Nevertheless, they were a fertile source of symbols and stories in myths and folklore.

67. Forests support around 80% of all species living on land, from eagles, bluebells, beetles, and many more. This biodiversity provides important ecosystem services and some species, such as the rosalia longicorn beetle, survive best in intact old forests. ---- The research reveals that forest loss amplified both gains and losses in the abundance of different species as well as in the overall biodiversity.

- A) Truly, the image of prehistoric man coming down from the forest trees was a sort of neo-positivist legend of the 19th century.
- B) But at the same time, the expectation is increasing for forest conservation, recreational uses, even spiritual needs for afforestation and re-forestation.
- C) Therefore, the different types of ecosystems, and forest ecosystems in particular, depend to a large extent on the temperature and level of rainfall.
- D) However, forests are being altered by human activities, for example deforestation for the cultivation of agricultural crops or the conversion to rangeland for grazing cattle.
- E) So, the climate changes affecting the position on the globe of the vegetation bands are because of completely natural, although complex causes.

68. The goal of an autonomous machine is to achieve an objective by making decisions while negotiating a dynamic environment. Given complete knowledge of a system's current state, artificial intelligence (AI) and machine learning can excel at this, and even outperform humans at certain tasks for example, when playing arcade and turn-based board games. But beyond the idealized world of games, real-world deployment of automated machines is hampered by environments that can be noisy and chaotic, and which are not adequately observed. ----

- A) One of the most important application areas for automation technology is manufacturing, so to many people, automation means manufacturing automation.
- B) Production rates in programmable automation are generally lower than in fixed automation, because the equipment is designed to facilitate product changeover.
- C) Since about 1970 there has been a growing trend in manufacturing firms toward the use of computers to perform many of the functions related to design and production.
- D) Artificial intelligence is intelligence demonstrated by machines, unlike the natural intelligence displayed by humans and animals.
- E) The difficulty of devising long-term strategies from incomplete data can also hinder the operation of independent AI agents in real-world challenges.

69. (I) Demagnetization is a slow process, but magnets can lose their strength over time. (II) So-called permanent magnets are constructed from materials made up of magnetic domains, in which atoms have electrons whose spins are aligned with each other. (III) This alignment is damaged over time, principally as the result of heat and stray electromagnetic fields, and this weakens the level of magnetism. (IV) When electrons move through a wire, the resulting current generates a magnetic field. (V) The process is very slow, however; a modern samarium-cobalt magnet takes around 700 years to lose half its strength.

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

70. (I) Humans and other mammals share the same distant ancestors, so our bones are almost identical to theirs in form and function. (II) The bones in your hand have the same layout as those in bat wings and in the fins of whales, for instance. (III) Healthy bones also require vitamin D and potassium. (IV) But they can't regenerate or replace themselves fully for the same reason that we can't grow ourselves a new lung or an extra eye. (V) This is what scientists are most interested in when trying to determine the origin of mysterious bones.

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

71. **(I)** While people might like to believe that they are not susceptible to biases and stereotypes, the reality is that everyone engages in them whether they like it or not. **(II)** Age, race, or health condition should not play a role in how patients get treated, however, implicit bias can influence quality healthcare. **(III)** It does not mean that you are necessarily prejudiced or inclined to discriminate against other people, however. **(IV)** It simply means that your brain is working in a way that makes associations and generalizations. **(V)** In addition to the fact that we are influenced by our environment and stereotypes that already exist into the society into which we are born, it is generally impossible to separate yourself from the influence of society.

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

72. **(I)** COVID-19 test's accuracy can be difficult to determine because of a lack of data. **(II)** Scientists working to quell the COVID-19 pandemic have developed tests that detect antibodies in the blood of people who have previously been infected with the new coronavirus. **(III)** These serology tests can provide important data on how COVID-19 is spreading through a population. **(IV)** There is also hope that the presence of certain antibodies may signify immunity to future infection—a possibility scientists are still investigating. **(V)** However antibody tests do have potential shortcomings: they may detect ineffective antibodies, they do not indicate if an infection is still active, and they fail to detect infection if administered before antibodies develop.

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

73. **(I)** Sunlight is the most important source of energy and it supports the survival and reproduction of most creatures on Earth. **(II)** Having dark feathers may help birds fly more efficiently as sunlight heats their wings and the surrounding air, increasing airflow. **(III)** To see how this might affect flight, a research team put stuffed wings of ospreys, gannets and back-black gulls in a wind tunnel. **(IV)** These were then heated with infrared light bulbs similar in intensity to being outdoors on sunny and cloudy days. **(V)** The temperature difference between the light and dark feathers creates convective currents in the air above the wing which may make flight more efficient.

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

74. **In the modern world, we all face ---- in life, but we are not helpless victims, and indeed, it is possible to build up the mental resilience to handle them better.**

- A) invasions B) explorations
C) challenges D) upgrades
E) attributes

75. **Scientists are currently testing the ---- of a new personalised vaccine aimed to fight cancerous cells of individual patients before its use for all patients.**

- A) cravings B) capabilities
C) consequences D) claims
E) concerns

76. **Due largely to ---- data flow from the field, extinction rates of local animals in Africa cannot be determined with accuracy.**

- A) innocent B)
irresponsible
C) unrelenting D) undeniable
E) undependable

77. **New social media outlets have ---- the way people interact with each other, so much so that even protests are taking place online.**

- A) diminished B) concealed
C) revolutionised D) appeared
E) gained

78. In a world where human beings are occupying the ecosystems of wild animals, we are ---- under risk of getting viruses from different animals.

- A) deliberately B) suddenly
C) painstakingly D) virtually
E) constantly

79. It might come as a shock, but bacteria ---- 90% of the cells in the body, and their genes outnumber our own by a hundred to one.

- A) look after B) derive from
C) break into D) account for
E) rely on

80. Though great white sharks ---- to be the most widely feared predators in the ocean, great white sharks themselves ---- something to fear – namely, orcas, also known as killer whales.

- A) are being known / can have
B) are known / may have
C) were known / must have
D) have been known / had to have
E) will be known / are supposed to have

81. Latinos ---- higher rates of heart disease than previously thought, ---- a well-accepted idea known as the “Latino paradox,” according to a new study.

- A) must have / refuted
B) have to have / to be refuted
C) might have / refuting
D) are supposed to have / having refuted
E) could have / to refute

82. ---- 152,000 square kilometres, large mangrove forests are inhabited by over 100 million people around the world, benefiting from what these forests ---- such as fisheries and forest products, clean water and protection against erosion.

- A) Covering / offer
B) Cover / offered
C) To have covered / have offered
D) Covered / are offering
E) To cover / will offer

83. Published research on pilot psychology tends to focus on terms such as stability, and also often points out that the professional pilot lifestyle can put a lot of stress ---- relationships, which is true ---- a certain extent.

- A) on / to B) in / under
C) over / of D) beneath /
onto
E) for / at

84. One of the complications of Ramsay Hunt syndrome is the potential for damage ---- the cornea of the eye, and because light passes - --- it for vision, it must be taken care of urgently.

- A) from / onto B) to / through
C) behind / along D) on / out
E) by / amid

85. In most cases, fainting is not dangerous and the person recovers quickly ---- it is accompanied by a fall or another severe injury.

- A) once
B) unless
C) only if
D) because
E) before

86. Cases of injury and death ---- motor vehicle crashes have steadily declined over the last 20 years thanks to improvements in driving safety technologies.

- A) in spite of
B) regardless of
C) with respect to
D) in addition to
E) due to

87. BPA, a substance linked to reproductive health problems, is ---- used in plastics and food and drink containers ---- in pizza boxes, shopping receipts, liners of aluminium cans.

- A) not only / but also
B) as / as
C) the more / the less
D) between / and
E) whether / or

88. ---- researchers studied the stomach contents of some juvenile great white sharks, they found these baby sharks feed on little pieces of food on the seafloor.

- A) Just as
B) When
C) So that
D) As though
E) If

89. Cyberaggression puts online content creators under constant ---- to produce something new and appear likeable to their audience, which can lead to severe issues.

- A) rehearsal
B) surveillance
C) pressure
D) expression
E) justification

90. Every time a dog walks around its neighbourhood to get to know it better, it is using its nose to ---- itself with the scents associated with its home territory and is also leaving its own scent trail.

- A) demonstrate
B) familiarize
C) compare
D) accompany
E) associate

91. Living on a remote, barren isle bestowed with few resources, the Rapanui people needed to combine ---- design with flawless sculpting to move the massive sculptures without any machinery.

- A) subjective
B) hilarious
C) minute
D) previous
E) ingenious

92. One survey shows that restricting access to social media in the workplace can cut the ---- of employees who spend more than four hours a week cyberloafing, or cyberslacking, by half.

- A) contact
B) estimate
C) celebrity
D) proportion
E) employment

93. **Contrary to the old view preaching obedience, exploring one's curiosity can be ---- good for the mind, with benefits for learning, creativity and even job enjoyment.**

- A) reluctantly B) barely
C) incredibly D) inquisitively
E) conveniently

94. **Seniors no longer have a low opinion of the young and generational context could be key to narrowing divides between decades, yet --- young adults is such a long-established habit or practice that it might no possible to undo it overnight.**

- A) looking down on
B) living up to
C) coming up with
D) putting up with
E) making do with

95. **Psychological research ---- that people who live in cities ---- an increased risk for depression, anxiety, and schizophrenia compared to people living in more rural areas.**

- A) shows / must have
B) has shown / may have
C) will show / might have
D) is showing / will have
E) showed / would have

96. **Healthy development ---- by abuse and neglect, which ---- cognitive and language development and socialization and particularly hamper a child's ability to develop trust or self-esteem, or to form healthy relationships with others.**

- A) would be subdued / has to disrupt
B) could be subdued / must disrupt
C) must have been subdued / had to disrupt
D) should have been subdued / might disrupt
E) can be subdued / may disrupt

97. **Cats ---- their fur with the aid of hundreds of sharp, hollow, backward-facing spines ---- their tongues, and these spines, called papillae, are made of keratin, the same substance that hair and claws are made of.**

- A) cleaned / carpeted
B) clean / carpeting
C) have cleaned / carpeted
D) will clean / to carpet
E) are cleaning / to be carpeting

98. **Understanding what types of cells are in the brain and what they do helps clarify the overall picture of how the brain works, and it also allows researchers to make comparisons ---- evolution models and to find biological similarities ---- species.**

- A) to / on B) over / atop
C) across / among D) at /
between
E) of / below

99. **When the late historian Sir Ben Pimlott embarked ---- his 1996 biography, his colleagues expressed their surprise that he does not consider Queen Elizabeth II worthy ---- serious study at all despite her long rule.**

- A) to / in B) on / of
C) upon / for D) amid / by
E) along / off

100. ---- we can find calories everywhere we look, from the best fitness trackers to the back of food packets, the actual definition of the term is often lost in translation.

- A) While B) Since
C) Once D) If
E) Before

101. In 1054 AD, a nearby star ran out of fuel and blew up in a dazzling supernova explosion; -- -- being located 6,500 light-years away, the blast was clearly visible in the skies over Earth for 23 days and several hundred nights after.

- A) owing to
- B) despite
- C) in the name of
- D) because of
- E) as opposed to

102. Infrastructure is ---- a city and county responsibility financed through local taxes, ---- these entities are dependent on state and federal funds as well.

- A) not only / but
- B) more / than
- C) such / that
- D) as / as
- E) either / or

103. Long gone are the days when seeing a film or sharing a milkshake was all it took to solidify a couple as definitively together; ----, modern dating has evolved into a delicate – at times complicated – series of ‘baby steps’ for young people.

- A) similarly
- B) hence
- C) moreover
- D) instead
- E) in addition

104. Fostering the development of a child into a critically-engaged democratic citizen stands as an overarching objective, one that parents and educators should strive to ---- through comprehensive educational initiatives.

- A) jeopardize
- B) qualify
- C) persevere
- D) sustain
- E) accomplish

105. During its initial decade, the Internet was predominantly utilized for the ---- of text, exemplified by email, yet the worldwide web and the browsers crafted for it were equipped to facilitate the transmission of images.

- A) dependence
- B) obstruction
- C) transmission
- D) emphasis
- E) implication

106. An expedition ---- by researchers from Munich in the mountains of Madagascar has uncovered a surprise: three new brightly coloured species of chameleon, adding to the more than 420 reptile species already known to inhabit the region.

- A) given up
- B) turned in
- C) put in
- D) dealt with
- E) carried out

107. Allegedly ---- under the patronage of the exceedingly wealthy King Croesus in Ephesus, the Temple of Artemis is declared ---- predominantly from marble.

- A) having been constructed / to have fashioned
- B) to have been constructed / to be fashioned
- C) constructed / to have been fashioned
- D) being constructed / to fashion
- E) having constructed / being fashioned

108. Upon sequencing the human genome in the early 2000s, researchers were optimistic that ---- the blueprint of every disease-causing protein in the body ---- to treatments in a relatively short period.

- A) to understand / will lead
- B) to have understood / could lead
- C) being understood / might have led
- D) to be understood / should have led
- E) understanding / would lead

109. Composer Johann Sebastian Bach demonstrated craftsmanship ---- both positive and negative senses, creating detailed music that, while accused of being overly formalistic and complex, sometimes came ---- the expense of emotional expression.

- A) in / at B) for / along
C) from / by D) with / about
E) among / on

110. ---- goats inhabit nearly inaccessible areas, their populations have suffered significant declines due to hunting and human encroachment into the foothills, where various species graze in the summer months.

- A) Just as
B) As long as
C) Since
D) Although
E) Unless

111. The expansive nature of theories often exceeds the scope of testing in a single experiment; ----, scientists focus exclusively on specific aspects, constituting the foundation for their research.

- A) otherwise
B) therefore
C) for instance
D) furthermore
E) likewise

112. Incorporating more physical activity into your daily life can yield various health benefits, ---- it involves simple choices like parking farther from your destination ---- engaging in a well-structured program at the gym.

- A) either / or B) such / that
C) not only / but also D) whether / or
E) the more / the more

113. During the early days of philosophy, the differentiation between science, religion, and philosophy was not ---- distinct ---- it would later emerge in subsequent centuries.

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

114. While both men and women are susceptible to supervisors overlooking their hard work, women are often more negatively impacted, because it is generally seen as more acceptable for men to talk about their accomplishments.

- A) It might be that supervisors do not discriminate on the basis of gender when it comes to hard work; yet, women are generally at an advantage due to the general tendency to accept men's constant bragging about their accomplishments.
- B) Since men are generally acknowledged when they talk about their accomplishments, women are more negatively affected when their supervisors overlook their hard work on purpose in the workplace.
- C) Women end up being more negatively affected when their hard work is overlooked by supervisors because it is generally accepted that men like to talk about their accomplishments more than women do.
- D) Though supervisors do not perform gender-based discrimination when they overlook hard work, women are more negatively affected by this as men are generally allowed to talk more about their accomplishments as opposed to women.
- E) Both men and women tend to suffer from their hard work being overlooked by supervisors, but it is women who are often more negatively affected as men's talking about their accomplishments is typically considered more acceptable.

115. Even though various theories abound regarding the inception of human language, there is hardly any definitive evidence disclosing the time of its origin and the manner in which it progressed from its early stages.

- A) While there are many speculations about the origin of human language, we have little, if any, solid evidence to indicate when it originated and how it evolved from its earlier stages.
- B) In the absence of compelling evidence regarding the timing of human language emergence and its subsequent complexity, we are unable to dismiss any speculations about its origin.
- C) While we possess some evidence about the origin of human language, the majority of our knowledge is still rooted in speculations that do not definitively reveal its onset and developmental path from its initial stages.
- D) The lack of dependable evidence pinpointing the emergence and progression of human language from its early stages contributes to the abundance of speculations surrounding its origin.
- E) We possess minimal evidence concerning the inception and early phases of human language, and we are overwhelmed by diverse speculations about its origin, none of which can be substantiated by compelling evidence.

116. According to research, when the brain encounters a new song, the process of figuring it out is more challenging than enjoyable.

- A) According to research, we find a song pleasant only if it poses a challenge for the brain when heard for the first time.
- B) Research shows that the brain finds it less enjoyable to decipher a complex song during the initial listening.
- C) Research indicates that when trying to enjoy a song for the first time, the process of figuring it out proves to be particularly challenging for the brain.
- D) Research suggests that when you hear a song for the first time, it is more challenging than enjoyable because your brain has to figure it out.
- E) As per research findings, songs that are amusing may still present a challenge for the brain, even if they are not heard for the first time.

117. Research has demonstrated that hazardous toxic chemicals from military waste, such as heavy metals or fuel hydrocarbons, may have long-term effects on civilian health and wellbeing.

- A) It has been proven by research that hazardous toxic chemicals from military waste, such as heavy metals or fuel hydrocarbons affect civilian health and wellbeing in the long term.
- B) What research has shown is that toxic chemicals from military waste, such as heavy metals or fuel hydrocarbons will definitely affect civilian health and wellbeing in the long run.
- C) Hazardous toxic chemicals from military waste, such as heavy metals or fuel hydrocarbons, have been shown by research to have possible long-term effects on civilian health and wellbeing.
- D) Hazardous toxic chemicals from military waste, such as heavy metals or fuel hydrocarbons may have long-term effects on civilian health and wellbeing and this has been proven by research.
- E) The long-term effects of hazardous toxic chemicals from military waste, such as heavy metals or fuel hydrocarbons on civilian health and wellbeing have been shown by recent research.

118. For those who have not been directly affected by it, the ongoing war in Ukraine and its casualties have been shifting to the periphery of their attention.

- A) People who have not been affected by the ongoing war in Ukraine and its casualties have started to ignore the events altogether.
- B) People who have not been affected by the ongoing war in Ukraine and its casualties have been paying less attention to them.
- C) People have been shifting their attention to other things than the ongoing war in Ukraine and its casualties as they aren't directly affected by it.
- D) If people had been affected by the ongoing war in Ukraine and its casualties, they would be paying more attention to it now.
- E) Those who have shifted their attention from the ongoing war in Ukraine and its casualties are the ones who are not affected by it.

119. Female astronauts are currently less likely to be selected for missions than men because their bodies tend to hit NASA's maximum acceptable threshold of radiation earlier.

- A) As male astronauts' bodies tend to reach NASA's maximum threshold of radiation much later than women's, they are currently more likely to be selected for missions.
- B) If the bodies of female astronauts didn't tend to hit NASA's maximum threshold of radiation earlier, they would be more likely to be selected for missions than men.
- C) The bodies of female astronauts are prone to reaching NASA's maximum threshold of radiation earlier than men's, so men are currently more likely to be selected for missions.
- D) One reason why men are currently more likely to be selected for missions than women is that the bodies of female astronauts hit NASA's maximum threshold of radiation earlier.
- E) Though there is practically no difference between men and women astronauts in terms of the speed at which their bodies reach NASA's maximum threshold of radiation, men are currently more likely to be selected for missions.

120. Even though various theories abound regarding the inception of human language, there is hardly any definitive evidence disclosing the time of its origin and the manner in which it progressed from its early stages.

- A) While there are many speculations about the origin of human language, we have little, if any, solid evidence to indicate when it originated and how it evolved from its earlier stages.
- B) In the absence of compelling evidence regarding the timing of human language emergence and its subsequent complexity, we are unable to dismiss any speculations about its origin.
- C) While we possess some evidence about the origin of human language, the majority of our knowledge is still rooted in speculations that do not definitively reveal its onset and developmental path from its initial stages.
- D) The lack of dependable evidence pinpointing the emergence and progression of human language from its early stages contributes to the abundance of speculations surrounding its origin.
- E) We possess minimal evidence concerning the inception and early phases of human language, and we are overwhelmed by diverse speculations about its origin, none of which can be substantiated by compelling evidence.

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- A) According to research, we find a song pleasant only if it poses a challenge for the brain when heard for the first time.
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- E) As per research findings, songs that are amusing may still present a challenge for the brain, even if they are not heard for the first time.

Belief in punitive gods may have helped humans cooperate across larger societies by uniting distant populations into a cohesive group. How humans started to cooperate on large scales is a long-standing question. To see how religions may have played a role, Martin Lang at Harvard University recruited 2228 people from Asia and Africa who practised different religions. The participants had to play a game where they were given coins to allocate into two cups which were labeled differently. These labels included themselves, a local of the participant's own religious group, another member of the same group who lives far away, and a member of a different religion. When asked to place a coin in one of the two cups, everyone tended to give more coins to themselves or local members of the same religion. But these choices differed depending on how punitive they believed their god to be. For example, in a choice between giving coins to themselves versus a distant person of similar beliefs, people who believed punitive gods had little power over their lives were most likely to take the coin for themselves, while people who believed strongly in punitive gods that had more power were more likely to give it away. How people play these games is correlated with how people act in the real world, says Lang. This may mean that belief in a punitive god could make people more willing to share resources across a large society.

122. What can be understood from the passage about believing in punitive gods?

- A) There is a wide spectrum of beliefs about it within and between the participants.
- B) Since other social technologies play the same role, it plays no role in some highly cooperative societies.
- C) It possibly facilitated collaboration among people to bring faraway populations together.
- D) It tends to arise after the appearance of large-scale societies.
- E) It allows people to share resources with others no matter how punishable it could be.

123. Which of the following can be inferred from the passage about the relationship between people's acts and their belief in punitive gods?

- A) Belief in gods who relentlessly punish us for immoral behavior may have contributed to more widespread cooperation.
- B) There surely seems to be a strong relationship between belief in punitive gods and social complexity.
- C) The more people believe in punitive gods, the less sharing they become.
- D) Commitment to punitive gods could steer people away from selfish behavior.
- E) The choices people make in life profoundly affect how much they believe in punitive gods.

124. Which word is closest in meaning to the underlined word 'recruited' in the passage?

- A) ended up
- B) set up
- C) carried out
- D) switched on
- E) brought together

125. Which of the following questions does this passage mostly answer?

- A) Why do people feel fear that a punitive god is watching them?
- B) What is so wonderful about punitive gods?
- C) How does believing in punitive gods affect the way people behave in the real world?
- D) What makes participants of the study believe in punitive gods?
- E) What affects punitive gods about their action on earth?