

1-6: For these questions, choose the best word or expression to fill the space.

1. Coiled springs as a method of releasing energy for clocks began to appear in Europe in the 15th century, which didn't do anything to improve ----, but it was able to reduce the size of the clock.
A) accuracy B) timidity
C) fluency D) trajectory
E) abundance
2. The pandemic has accelerated the digitization of society in all political, social, and economic realms, and in this context, native digital companies that are heirs to the so-called new economy experience ---- growth.
A) disagreeable B) inconsistent
C) exponential D) unwilling
E) emasculated
3. Typically, crash diets involve ---- reducing calorie intake to 800-1,200 calories a day for a few weeks at a time in order for a person to lose weight in a short time.
A) gravely B) exclusively
C) drastically D) cleverly
E) repeatedly
4. Snow leopards live in the rugged mountains of central Asia, and they are quite elusive; thus, spotting them, even in zoos in the winter, may be a real ---- for even experts in the field.
A) ingenuity B) susceptibility
C) segregation D) reproduction
E) challenge

5. The prospect of dying broke, or desperately poor, looms as an imminent threat for the boomer generation, which vastly ---- the middle class and looked hopefully toward a comfortable retirement on the backbone of higher-than-average pensions.
A) elucidated B) attempted
C) disseminated D) precipitated
E) expanded
6. Over the past decade, the rise of political extremism and its associated linguistic expression ---- communication companies' decisions to restrict hate speech and, in many cases, ban speech emanating from specific users.
A) coped with B) made out
C) carried on D) resulted in
E) put off

7-16: For these questions, choose the best word(s) or expression(s) to fill the space(s).

7. While American farmers elsewhere ---- their crops by freely pumping the groundwater beneath their land recently, growers in Pajaro, California ---- hefty fees for irrigation water – making it one of the most expensive places to grow food in the country, if not the world.
A) watered / were supposed to pay
B) have watered / must pay
C) had watered / have had to pay
D) would water / should have paid
E) were watering / might pay
8. Rock and roll ---- an expression of popular culture in the American South since the days of Elvis Presley, but it was not until the rise of Phil Walden's Capricorn Records in the early 1970s that Southernness itself ---- as a rock and roll virtue.
A) had been / was celebrated
B) has been / would be celebrated
C) was / has been celebrated
D) is / was being celebrated
E) will be / had been celebrated

9. Whether ---- by the tsars or the Politburo, Russia's government is often portrayed as the primary agent ---- the development of Russian civil society, scientific inquiry, technological development, and economy.

- A) leading / driven
- B) having led / to drive
- C) led / driving
- D) having been led / to be driving
- E) to have led / having driven

10. Historical writing ---- the Chinese environment traces its ultimate origins ---- earlier studies of agrarian society, natural disasters, and water control written between the 1950s and the 1980s.

- A) over / for
- B) in / back
- C) of / from
- D) at / amid
- E) on / to

11. Although community gardening may provide leverage ---- means of developing a sustainable city, it is a marginal phenomenon and contributes little to sustainable development ---- its present form.

- A) to / within
- B) for / in
- C) below / with
- D) above / across
- E) among / towards

12. ---- communities developed into cities, empires and states, societies became more segregated, time became more important and was divided into hours.

- A) Unless
- B) As
- C) Even though
- D) Whereas
- E) As far as

13. ---- scientists know critical details about an earthquake, they can assess how likely it is to generate a tsunami and can advise coastal communities accordingly.

- A) Only when
- B) Since
- C) Once
- D) On condition that
- E) Though

14. ---- the growing number of studies on the use of Artificial Intelligence in language learning, coupled with the unresolved disparities regarding its use, it is about time to conduct a systematic review to shed light on the status quo of its use in language learning.

- A) In case of
- B) Unlike
- C) As for
- D) In contrast to
- E) Given

15. Over the last two decades, private equity firms have become major players in health care, purchasing ---- hospitals ---- a growing number of nursing homes, physician practices and home health care companies.

- A) so / that
- B) not only / but also
- C) whether / or
- D) either / or
- E) as / as

16. Certain pandemics triggered a debate over the meaning of "science" by the medical profession, the media, and the public; unfortunately, the vast majority of individuals were misled by those who spoke ---- science but who confused plausible stories with scientific explanation.

- A) in spite of
- B) in view of
- C) owing to
- D) on behalf of
- E) in addition to

17-21: For these questions, choose the best word or expression to fill the spaces in the passage.

The term 'affirmative action' originated in the USA under President Kennedy. Originally it was designed to (17) ---- that employees and applicants for jobs with government contractors did not suffer discrimination. Within a year, (18) ----, 'affirmative action' was used to refer to policies aimed at compensating African-Americans for unjust racial discrimination, and at improving their opportunities to gain employment. An important implication of this shift was that affirmative action came to mean preferential treatment. Preferential treatment was later extended to include women (19) ---- other disadvantaged racial and ethnic groups. The arguments in favour of preferential treatment can be usefully classified as backward-looking and forward-looking. Backward-looking arguments rely on the claim that preferential treatment of women and disadvantaged racial minorities compensates these groups or the members (20) ---- the discrimination and injustices they have suffered. Forward-looking arguments rely on their claim that preferential treatment of women and disadvantaged racial minorities (21) ---- to bring about a better society.

17.

- | | |
|----------------|------------|
| A) ensure | B) clarify |
| C) acknowledge | D) rectify |
| E) above | |

18.

- | | |
|----------------|-------------|
| A) therefore | B) however |
| C) in addition | D) likewise |
| E) otherwise | |

19.

- | | |
|-------------------|---------------|
| A) due to | B) in view of |
| C) in the name of | D) despite |
| E) as well as | |

20.

- | | |
|------------|----------|
| A) between | B) among |
| C) toward | D) for |
| E) of | |

21.

- | | |
|----------------|---------------|
| A) has helped | B) would help |
| C) is helping | D) will help |
| E) was helping | |

22-26: For these questions, choose the best word or expression to fill the spaces in the passage.

Adopting a healthier diet will probably feature prominently in many of our new year's resolutions. (22) ----, it is often challenging for people to live up to their intentions. But there are good reasons to persist (23) ---- making deliberate choices about what is on your plate. These choices not only impact your own health, they affect the health of the planet, too. Food systems represent one-third of global greenhouse gas emissions. (24) ---- left unchecked, these emissions would probably add enough extra warming to take Earth's average temperature beyond a 1.5°C rise in the 2060s. Research is now also (25) ---- air pollution on the list of problems caused by agriculture. Animal farming, in particular, is a major source of ammonia emissions. These emissions react with other pollutants to form fine particulate matter, which (26) ---- health issues like cardiovascular disease, lung cancer and diabetes.

22.

- | | |
|----------------|-------------|
| A) Thus | B) Still |
| C) In contrast | D) Likewise |
| E) Meanwhile | |

23.

- | | |
|------------|----------|
| A) on | B) over |
| C) in | D) above |
| E) beneath | |

24.

- | | |
|-----------|----------|
| A) If | B) While |
| C) Though | D) Since |
| E) After | |

25.

- | | |
|-----------------|----------------|
| A) plummeting | B) cultivating |
| C) aborting | D) destroying |
| E) establishing | |

26.

- | | |
|------------------|-----------------|
| A) can cause | B) must cause |
| C) would cause | D) had to cause |
| E) used to cause | |

27-36: For these questions, choose the best option to complete the given sentence.

27. It has been argued that patients with anorexia nervosa should have rights to discontinue treatment, ----.

- A) though they are often competent to make decisions in all other areas of their lives
- B) because the idea of letting a mentally ill person withdraw from treatment is uncomfortable
- C) whereas a patient's right to stop fighting her disease and risk dying is considered freedom of choice
- D) despite the fact that in their case food refusal might seem irrational
- E) as a new study has offered an approach that aimed to palliate their psychological pain

28. Though a third of Americans say climate change should be a top priority for the president and Congress on TV interviews, ----.

- A) the general populace should probably feel more concerned than they are
- B) climate change ranks 17th out of 21 issues polled in a survey asking for issues of national importance
- C) people actually don't need to care about climate change in order to fix it
- D) it seems like we have been battling climate change for decades and made no progress
- E) stories about climate change is obscuring our ability to imagine solutions to the crisis

29. Since a self-driving car constructs an overly simplified picture of the world from sensor data that ignores an enormous amount of detail from the real -- social -- world, ----.

- A) every human-shaped blob on the video stream is considered a pedestrian
- B) the perception that a self-driving vehicle has of the road is not necessarily the same as a human's
- C) our human sight is trained from childhood on and we count on others to see things the same way as we perceive them
- C) a fundamental assumption underpinning self-driving cars is that the number of unusual situations is finite
- E) stopping in the road might not necessarily be the safest choice, especially if it involves stopping in front of a fire truck

30. ----, the symptoms often flare just after waking up -- hence the name "morning sickness."

- A) As nausea and vomiting are extremely common in the early stages of pregnancy
- B) Since a pregnant woman's levels of reproductive hormones surge in the first trimester
- C) While pregnancy-related nausea and vomiting can happen at any time of day
- D) Though human chorionic gonadotropin may induce in the digestive tract
- E) Whereas people's genetics may also influence how sick they feel during pregnancy sickness

31. While bottled water might be safer in certain parts of the world due to pollution of source water, ----.

- A) there is no real advantage to drinking bottled water in Australia and similar countries
- B) bottled water usually costs the same as tap water for people living in developed countries
- C) lead pipes haven't been used in the distribution of tap water since the 1930s
- D) the risks of drinking untreated water are far higher as it is more likely to contain pollutants
- E) it is probably best not to drink from the hose when watering the plants

32. As whole blood breaks down quickly, and there were no protocols in the past for safely preserving it, ----.

- A) the storage and distribution of blood, including the separation of its components, was not studied
- B) the recommendation that hospitals create their own blood banks was not followed
- C) a Black surgeon and researcher was prevented from developing new ways to store blood
- D) preparing a patient for an operation involves finding the appropriate blood type
- E) hospitals often did not have the appropriate blood type when patients needed it

33. When people think of market crazes, Dutch tulips or real estate come to mind; ----.

- A) thus, it is normal for people to come up with medicinal leech in a normal conversation
- B) however, in the 19th century demand for medicinal leech nearly drove the species to extinction
- C) meanwhile, leech use reached new heights in the 19th century
- D) in contrast, bloodletting via leech was relatively safe and didn't require any specialized skills
- E) likewise, hospitals relied on rural workers who gathered leech to be used in "operations"

34. Since average winter temperatures in the village of Oymyakon in eastern Siberia reach minus 50 C, ----.

- A) its name translates to "water that doesn't freeze," due to a thermal spring nearby
- B) the city's coldest day on record was in 1924, when temperatures plunged to minus 71.2 C
- C) it is known as the coldest permanently inhabited place on Earth
- D) the valleys around the village trap wind inside the town and create a colder climate
- E) the temperature drops below 0 °C in late September and remains below freezing until mid-April during some years

35. Despite its extreme saltiness, unpredictable nature and unprecedented effect on our weather, ----.

- A) the ocean moves sideways far more than it moves up and down
- B) the ocean can feed back into the weather by warming it up
- C) the ocean is basically stirred up by swirls, and it takes energy to form a swirl
- D) the ocean is vital to all life on Earth as it shapes the civilizations on the planet
- E) the warm water is at the top of the ocean and what is down below is much colder

36. The human brain is an immensely complex and fragile organ that depends on a constant supply of oxygenated blood, ----.

- A) or else when the brain's supply of oxygen is reduced or eliminated, damage can set in very quickly
- B) so without oxygen, the brain's cells, including the signal-sending neurons that enable us to think and feel, begin to die
- C) but our brain needs this huge oxygen supply to maintain its delicate balance of electrolytes
- D) and the exact time it takes for the brain to incur irreversible damage or completely die from oxygen deprivation depends on several factors
- E) yet complete lack of oxygen in the brain will cause the brain cells to die within several minutes

63-67: For these questions, choose the best option to complete the dialogue.

63. Podcast Host:

- **Welcome. I will get right down to my first question: Some people say, “If we took all humans off Earth, it would renew itself in a very short time.” Does the same thing go for the fish in the ocean?**

Marine Biologist:

- **It is a good question, but the answer is no.**

Podcast Host:

- **Why is that?**

Marine Biologist:

- ----

Podcast Host:

- **Interesting. This means they have a critical function for the continuation of life in the ocean.**

- A) Because, contrary to humans, fish improve life in the ocean by creating and maintaining important habitats for other organisms as they forage for food.
- B) It is because outside of the water, many birds, mammals and reptiles eat fish and rely on them as an essential source of protein.
- C) For example, the salmon feed not only animals that catch them, like bears, but also the plants that border the streams.
- D) The main reason is that fish and other seafood products are an important protein source for nearly 3 billion people.
- E) One reason is that human populations have been eating and following fish around the world for thousands of years.

64. David:

- **This paper says it is essential to focus on the short-term consequences of unhealthy behavior in order to resist unhealthy choices for eating.**

Jennifer:

- **Wow! I must read it as it is quite the opposite of conventional wisdom.**

David:

- **And what might that be?**

Jennifer:

- ----

David:

- **I turns out I know it. I have been doing the same for many years, with no positive outcomes.**

- A) In the heat of the moment, people often overlook distant outcomes, diminishing the effectiveness of strategies focused on the long term.
- B) Prompting people to focus on the good taste – rather than the health benefits – of foods such as apples and carrots increases their consumption.
- C) Focusing on the immediate versus delayed benefits of behaviours such as healthy eating and exercise can increase intrinsic motivation.
- D) It suggests that the best way to resist unhealthy choices is to think about the long-term consequences.
- E) It claims that starting healthy behaviours is one important piece of the puzzle; another is sticking with these behaviours over time.

65. Brian:

- It is a shame children have to get up in the dark and go to school because of the so-called daylight saving time.

Davis:

— ----

Brian:

- What? You haven't been watching or reading anything? It is all the rage nowadays.

Davis:

- I do, but I think that students could get more sleep and learn better if school started a little later regardless of the daylight saving schemes.

Brian:

- Well, it is food for thought.

- A) It is difficult for everyone to put the blame on the daylight saving time schemes.
- B) Well, actually the problem is not about the daylight saving time at all.
- C) Not everyone thinks that schools are responsible for this problem.
- D) I believe insufficient sleep among adolescents is a public health crisis.
- E) Around the world, school start times vary, from 7 a.m. in Brazil to 9 a.m. in Finland.

66. Phil:

- Here's a surprise fact for you: The universal symbol for recycling, known as the "chasing arrows" logo, is stamped on so many things. But that doesn't mean they're recyclable.

Colin:

- No way! You're pulling my leg, aren't you?

Phil:

— ----

Colin:

- Life has just become so confusing for me now.

Phil:

- It also has for me. In fact, the logo is so widely misunderstood that last year California banned its use on things that aren't recyclable.

- A) No, I'm not. If there's a "3" in the center, it's PVC, which most curbside recycling programs don't accept.
- B) I wish I was, but its main purpose isn't to say whether a product is recyclable, but to identify the type of plastic it's made from.
- C) Indeed, the unhelpful symbol is just one aspect of a recycling system that is far too confusing to be broadly effective.
- D) Unfortunately, for reasons like these, only a small proportion of recyclable plastics actually get recycled.
- E) It also depends on the country's protocol: Even if you sort everything perfectly, but then put the sorted plastics in an opaque bag to be picked up, you may have just wasted the effort.

67. Darla:

- What's your new year resolution? Mine is to stop bingeing on pastries and cookies when they're available.

Bennie:

- I really don't think new year resolutions work at all.

Darla:

- What makes you say that? They constitute a lifeline for a lot of people, bringing hope and a strand of self-belief.

Bennie:

- ----

Darla:

- So you say we should make resolutions only when we are really up for them.

- A) You may not be wanting to make a change for the right reasons but then you say, 'Oh, this is something I should do.'
- B) The problem is that we often set unrealistic goals, and we try to make a really big change and we try to do it all at once.
- C) Science suggests most people who set resolutions each year don't stick with them, and mental health experts say other strategies for adopting healthier habits work better.
- D) There's nothing magical about the first of January that makes it easier to achieve goals than it would be at other times of the year unless you're adamant.
- E) Resolutions can't lead to sustainable behavior change because they are not constructed in a way that harnesses motivation.

72-75: For these questions, choose the best option to complete the missing part of the passage.

72. Thought comes before emotion, and when you develop the skill of learning how to direct your thoughts, you are also learning how to manage your emotions. ---- Your nervous system is responsible for producing the neurotransmitters that your brain uses to transmit thought and create emotional responses. When your nervous system is overstressed and/or isn't working properly, the neuro-chemical balance in your brain gets disrupted, and it can negatively affect your thinking and your emotional responses.

- A) Therefore, if your nervous system is unbalanced, it makes the process of trying to work on your thoughts extremely difficult.
- B) A dysregulated nervous system results in dysregulated emotions, as a result of which you may be overly revved up and overreactive.
- C) On the other hand, an overstressed nervous system can disrupt the neuro-chemical balance in your brain.
- D) Thus, this is a process that requires people to use their conscious mind to override their automatic one.
- E) Thoughts and feelings, however, are inherently part of a chemical process that is regulated by your nervous system.

73. Wastewater testing remains one of the few reliable instruments still available to monitor the current Covid-19 virus in the absence of a public health emergency. ---- For many who remain at higher risk from the virus – like those who are older, immunocompromised or already have a serious illness – it has become a crucial tool helping them understand when to be particularly careful.

- A) It is an imperfect metric, useful primarily for identifying if there is an acceleration of virus spread in the region.
- B) It can signal the start of a surge before hospitalizations begin to rise, and it includes even people who don't know they have Covid.
- C) The data is often reported as normalized viral copies per ml or per gram, a number that is nearly impossible to translate into precise case counts.
- D) Samples of wastewater are captured at or on the way to treatment plants and tested for viral RNA in a lab.
- E) Some labs "normalize" the data – that is, they adjust the denominator – by looking at the number of gallons flowing through the plant.

74. If you have ever looked up at the full moon in the night sky, you may have noticed a large halo of light around it. But why does this lustrous ring sometimes encircle our natural satellite? While it might seem like a sign you need a new glasses prescription, it is really caused by ice crystals high up in the atmosphere. ---- Because cirrus clouds form high up and can be pretty thin, you may not even observe that there are really obvious clouds there by eye.

- A) Those ice crystals accumulate in cirrus clouds – clouds of pure ice in the stratosphere, up to 50 kilometres above ground.
- B) The halo is always the same size, no matter where you are in the world or what the weather is like that day.
- C) These small ice crystals actually refract the light from the moon, after which the spectacle comes into being.
- D) The result is that light traveling from the moon to your eye detours through the ice crystals and ends up 22 degrees away from where it started.
- E) The other way that they form is when you have these cumulonimbus clouds – these big towering storm clouds.

75. This year, countries with a combined population of 4 billion – around half the world's people – are holding elections, in what is being described as the biggest election year in recorded history. ---- Both refer to misleading content, but disinformation is deliberately generated. Vigorous debate and argument ahead of elections is foundational to democratic societies. Political parties have long competed for voter approval and subjected their differing policies to public scrutiny. But the difference now is that online search and social media enable claims and counterclaims to be made almost endlessly.

- A) There could be additional approaches to preventing people falling into data voids of misinformation and disinformation.
- B) A study highlights the existence of data voids, into which people searching to check the accuracy of controversial topics can easily fall.
- C) It might no longer be enough for search providers to combat misinformation and disinformation by just using automated systems.
- D) Some researchers are concerned that 2024 could also be one of the biggest years for the spreading of misinformation and disinformation.
- E) Clearly, copying terms from inaccurate news stories into a search engine reinforces misinformation, making it a poor method for verifying accuracy.

76-80: For these questions, choose the irrelevant sentence in the passage.

76. (I) Less than 15% of the global population lives in Europe or North America. **(II)** Yet more than 70% of published human microbiome data – on the collections of bacteria, fungi and viruses that live on and in our bodies – comes from European and North American populations. **(III)** It is now clear that the gut microbiota – the most studied of the human microbial communities – of children and adults can differ markedly depending on where people live. **(IV)** Around 85% of the 25,000 high-resolution gut metagenomes from children under four that are publicly available come from individuals living in these wealthy regions. **(V)** In this context, metagenomes are collections of all the genomes contained in a faecal, skin or other human sample.

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

77. (I) Mining is a crucial industry – from iron and copper to gravel and sand, we depend on it for the basic building blocks of the modern world. **(II)** It is a fast changing sector, as the clean energy transition and digitalization boost demand for materials such as cobalt and lithium and curb the need for others, such as fossil fuels. **(III)** Yet we know surprisingly little about what's going on in the sector globally and how mining affects the environment and communities near mines. **(IV)** Because no mine is immune from risk or controversy, independent research is essential to decipher the extent of its risks and impacts and to build trust with the public. **(V)** In Indonesia, the world's biggest coal exporter, rainforests are being cleared for coal mines and these mines pose safety risks – since 2011, more than 40 people, mostly children, have drowned in poorly managed coal pits.

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

78. (I) Politicians and policymakers often speak excitedly of the potential of scientific and technological innovation to boost economic growth and development. **(II)** Generally, the innovation they have in mind emanates from shiny city-centre buildings. **(III)** But not all innovations that improve people's lives need such resources. **(IV)** And this is why the creation of low-cost products using locally available, sustainable materials for mass consumption – a process sometimes called 'frugal innovation' – is gaining traction. **(V)** Studies of frugal innovation are uncommon in the natural sciences literature, but appear more often in the social-science literature.

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

79. (I) Neuroscientists now have unprecedented access to the living brain, thanks to magnetic resonance imaging (MRI). **(II)** More than 50,000 human-brain-imaging articles have been published since MRI came on the scene in the 1990s. **(III)** This consortium approach and the embrace of big data has ushered in major discoveries in fields such as genomics and particle physics, and we can do the same for women's brain health. **(IV)** But of those, less than 0.5% consider health factors specific to women. **(V)** Women's health is both understudied and underfunded, and this oversight is especially troubling given that 70% of people with Alzheimer's and 65% of those with depression are women.

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

80. (I) Disasters associated with natural hazards are constantly in the headlines. **(II)** Some involve predictable human-made factors, such as the catastrophic floods in Derna, Libya, in September, which were caused by the collapse of two dams after torrential rains. **(III)** Others are unexpected, such as the eruption of volcano Hunga Tonga–Hunga Ha'apai in Tonga in January 2022, with a plume that reached a height of 57 kilometres. **(IV)** These can often be avoided, or at least attenuated, through accurate forecasting of an event, advance warning to the relevant populations and well-prepared response plans. **(V)** That eruption caused a Pacific-wide tsunami and cut the country's undersea communication cables, shutting down national and international telephone and Internet traffic.

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