Direction (1-4): Study the following information and answer the questions that follow:

One key element of human language is semantics, the connection of words with meanings. Scientists had long thought that, unlike our words, animal vocalizations were involuntary, reflecting the emotional state of the animal without conveying any other information. But over the last four decades, numerous studies have shown that various animals have distinct calls with specific meanings.

Many bird species use different alarm calls for different predators. Japanese tits, which nest in tree cavities, have one call that causes their chicks to crouch down to avoid being pulled out of the nest by crows, and another call for tree snakes that sends the chicks jumping out of the nest entirely. Siberian jays vary their calls depending on whether a predatory hawk is seen perching, looking for prey or actively attacking — and each call elicits a different response from other nearby jays. And black-capped chickadees change the number of "dees" in their characteristic call to indicate the relative size and threat of predators.

Two recent studies suggest that the order of some birds' vocalizations may impact their meaning. Though the idea is still controversial, this could represent a rudimentary form of the rules governing the order and combination of words and elements in the human language known as syntax . . .

In addition to alert calls, many bird species use recruitment calls that summon other members of their species. Both Japanese tits and southern pied babblers appear to combine alert calls with recruitment calls to create a sort of call to arms, gathering their compatriots into a mob to harass and chase off a predator. When the birds hear this call, they approach the caller while scanning for danger.

Scientists led by ethologist Toshitaka Suzuki of Kyoto University discovered that the order of the combined calls matters to the Japanese tits. When Suzuki's team played a recorded "alert+recruitment" combo to wild tits, it elicited a much stronger mobbing response than an artificially reversed "recruitment+alert" call. This could simply be explained by the birds responding to the combined alert+recruitment call as its own signal without recognizing the parts of the combination, but the scientists came up with a clever way to test this question. Willow tits have their own distinct recruitment calls, which Japanese tits also understand and respond to in the wild. When Suzuki's team combined the willow tit recruitment call with the Japanese tit alert call, the Japanese tits responded with the same combined scanning and approaching behavior — but only if the calls were in the correct alert+recruitment order. "These results demonstrate a new parallel between animal communication systems and human language," Suzuki and colleagues wrote in Current Biology in 2017.

But it's a matter of interpretation whether the call combinations of the tits and babblers is really relevant to discussions of human language, which involves more complex sequences, says behavioral neuroscientist Adam Fishbein of the University of California, San Diego. "If they were doing something more like language, you would get a whole bunch of different combinations of things," Fishbein says. "It's such a restricted system within the birds.".

Q 1. Which of the following most likely represents the scientists' perception about animal vocalization that existed four decades ago?

1) Characteristic sounds emitted by any animal species lack auditory coherence such as distinctive patterns in notes and syllables.

2) Characteristic sounds emitted by any animal species aren't an auditory manifestation of sentient instincts of animals.

3)
Characteristic sounds emitted by any animal species are a product of conscious efforts by the animals to invite a desired response from its surroundings.

4)
Characteristic sounds emitted by any animal species are mere purposeless and involuntarily orchestrated responses to external stimuli.

Q 2. All of the following, if true, do not contradict the claims of Toshitaka Suzuki's discovery regarding animal vocalization, EXCEPT:

1)
Geographically distant populations of the same bird species can make small tweaks to their songs over time, eventually resulting in a new dialect — a process similar to how humans develop different accents and dialects.

2)
As compared to words of a language, animal signals are innate, immutable and involuntary; a vervet monkey can't arbitrarily substitute a new sound for the sound it makes when it sees an eagle or the sounds it makes when it encounters other predators.

3)
Though male zebra finches all learn the same single song, scientists have found that there is variation only in temporal fine structure (pitch, tone or timbre) among renditions of the standard song.

4)
In contrast to most songbirds, chestnut-crowned babblers do not sing; instead its extensive vocal repertoire is characterised by discrete calls made up of smaller acoustically distinct individual sounds.

Q 3. Which of the following can be correctly inferred from the second and the third paragraph?

1)
The vocal learning that humans and some animals do is one of the most specialized components, but none of them are shared to some degree by other animals.

2) Though animals can learn how to use innate vocalizations in new ways, they barely show an ability to learn new calls.

3) Vocalization in animals may be governed by changes in the state of events in the surrounding environment.

4) It is an established fact that, in animals, order of vocalization is independent of the state of the environment external to animals.

Q 4. Adam Fishbein would most likely agree with which of the following?

1)
Toshitaka Suzuki's findings regarding animal vocalization substantiate the analogous structure of human language and animal communication systems.

2)
Toshitaka Suzuki's findings regarding animal vocalization are not sufficient to conclude a syndicate between human language and animal communication systems.

3)
Toshitaka Suzuki's findings regarding animal vocalization do not account for the restricted set of combinations of distinct sounds in animal communication systems.

4)
Toshitaka Suzuki's findings regarding animal vocalization does not stand ground when pitted against the known similarities between language and natural gestures.

Direction (5-8): Study the following information and answer the questions that follow:

Our modern Western calendar is almost entirely a Roman invention, but it has changed significantly throughout history. Each name and number from our calendar is steeped in tradition and history. Perhaps you've heard a few tales about them? The Romans originally used a 10-month calendar, but Julius and Augustus Caesar each wanted months named after them, so they added July and August. August originally had fewer days than July. To even it up, Augustus took a day away from February. Almost everything about these supposed factoids is wrong. . . By the time of the Caesars, the year already had 12 months, and Julius actually changed an incredibly broken and bureaucratic system. . .

Julius had spent the years 48-46 B.C. in Egypt, where he became aware of Egypt's fixed-length 365-day calendar. When he returned to Rome, he called together a council of the best philosophers and mathematicians in order to solve the problem of the calendar. They decided the calendar would combine the Roman month names, the fixed length of the Egyptian calendar and the 365¼ days known by Greek astronomy. Ten days were added to the year to form a regular Julian year of 365 days. Two days were added each to Januarius, Sextilis and December; one day each was added to April, June, September and November. No extra days were added to February, likely

so as to not affect the rituals performed during this month, though a “leap day” was added every fourth year for a “leap year” length of 366 days. At the time Julius took office, the seasons and the calendar were three months out of alignment due to missing intercalations, so Julius added two extra months to the year 46 B.C., extending that year to 445 days. This was referred to as the "last year of confusion." The new 365/366-day calendar was inaugurated the next year in 45 B.C. . . .

Quintilis was renamed Iulius (July) in 44 B.C. to honour Julius because it was the month of his birth. Later, in 8 B.C., Sextilis was renamed Augustus (August) to honour Caesar Augustus because several of the most significant events in his rise to power, culminating in the fall of Alexandria, occurred in that month.

This brings us to the second myth about the Roman calendar: Augustus taking a day away from February to avoid having a shorter namesake month than Julius. This myth has its origins in the writings of a 13th-century Parisian scholar named Sacrobosco. When Julius Caesar created his calendar, he alternated 31-day and 30-day months (with the exception of February which had 29 if it wasn’t a leap year) and changed the name of his birth month from Quintilis to “July.” Later, when Augustus became Caesar, the senate changed the month Sextilis to “Augustus.” Sacrobosco proposed that Augustus’ month had a supposedly inferior number of days than Julius’, so the Senate fixed this by stealing a day from February. To avoid having three long months in a row, the senate also switched the lengths of September and October, and of November and December. This narrative is demonstrably false, particularly because it conflicts with surviving wall paintings that show the months were already irregular before Julius reformed them.

Q 5. Each of the following could be inferred about the "last year of confusion" EXCEPT:

1) This year marks the change from the pre-Julian Roman calendar to the Julian calendar.

2) Julius Caesar worked towards recalibrating the calendar in preparation for his calendar reform.

3) Julius Caesar compensated for the cumulative errors of the Roman calendar.

4) Julius Caesar singularly introduced the new calendar based on the Egyptian version.

Q 6. All of the following could constitute the ‘myths’ around the modern calendar EXCEPT:

1) Before the adoption of the 365/366 days calendar, the usual number of days in a Roman calendar was 445.

2) Some months were renamed by the Caesars themselves in order to honour their specific associations with them.

3) Augustus Caesar borrowed a day from February in order to even out the number of days in August and July.

4) The Romans changed from a 10-month calendar to a 12-month one due to the efforts of Julius Caesar.

Q 7. All of the following can be inferred about the Roman calendar prior to 45 BC EXCEPT:

1) The calendar that existed most likely consisted of 355 days.

2) Januarius, Sextilis and December most likely had 28-29 days.

3) April, June, September and November most likely had 26-27 days.

4) None of the above is a valid inference

Q 8. Identify the set of keywords that most comprehensively capture the ideas discussed in the passage.

1)
Myths regarding the modern calendar- contributions of Julius Caesar – contributions of Augustus Caesar in developing the modern calendar

2)
Myths regarding the roman calendar - contributions of Julius Caesar – contributions of Sacrobosco in debunking the myths around Augustus Caesar

3)
Debunking of myths about the roman calendar - contributions of Julius Caesar – contributions of Sacrobosco in creating the myths around Augustus Caesar

4)
Myths regarding the modern calendar – contributions of Julius Caesar – myths regarding Augustus Caesar and their possible origins

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Direction (9-12): Study the following information and answer the questions that follow:

A categorisation criterion separating humans into two distinct groups without intersections presupposes that every human can be categorised according to this criterion. Such a system is weakened by any individual it visibly fails to categorise.
In the toughest cases, the very existence of the deviant individual is entirely forbidden. There is an international ban on states producing stateless individuals. National systems can tolerate a minimal set of "accidentally" stateless people, but if they were too numerous, it would endanger the entire system. In these rigid cases, the deviant individual has to comply to survive and endure physical transformation if necessary.

In preindustrial societies, cultures commonly assume at least three official genders. In the Americas, the sexual physiology of the *berdaches* does not have to match man/woman-gendered activities. Roscoe listed them in more than 130 North American tribes, in societies as diverse as nomadic Alaskan tribes and Florida city states. In contrast, in societies where only two fundamental sexes and genders are tolerated, the man/woman partition is thought of as natural and effortless. This fundamental belief is maintained at a very high cost in order to dissimulate humans, most visibly failing the bipartition: intersexes and transgender people. Reassignment to the male/female gender duality is overwhelmingly the norm for intersexes in all countries in which these operations are clinically feasible. In France, transgender persons have access to identity documents in accordance with their chosen gender if they are subjected to the enforced surgical assignment (evidence of a sex change operation) and themselves subjected to psychological testing of supposed adequacy with the requested gender. In more flexible cases, the presence of deviant individuals is tolerated if they are invisible or "passing." In societies "tolerating" homosexuality, homosexuals still have to be discreet and not challenge the heterosexual norm. They are "tolerated" as long as they respect the normative dimension of the border. The outline of this border remains under the monopolistic control of an easily identifiable group. The threshold can come with a quota system, beyond which "enough is enough" (enough homosexuals, women, immigrants, impoverished people). Once invisibility fades away, so-called tolerant societies can respond with great violence. Exogenous individuals may occasionally reveal their presence to the extent that they propose a personal formula to avoid challenging the established order (humour, countersignals, participation in the repression of their peers, etc.). It is important to note that the deviant individual remains entirely in charge of the invisibilisation process. Individuals fleeing their category have to take charge of completely switching their overt categorical symbols (costume, language, food habits, cultural reflexes, etc.) in order to avoid social isolation. People with disabilities quite commonly report such impossible assimilation strategies where they are tolerated to the exact extent to which they take their self-effacement.

This first part of the chapter has established that borders between social groups can be approached as fundamentally similar to geopolitical boundaries. However, be they geopolitical or otherwise, borders are not uniform and do not all produce the same effects.

Q 9. Each of the following can be inferred from the passage EXCEPT:

1) Americas are likely to be more tolerant of transgender people than France.

2) being invisible in a non-tolerant society is advisable for those who are deviant.

3) a deviant individual is aperson who differs from the norms ofsociety.

4) gender duality can have a negative impact on certain sections of society

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Q 10. "A categorisation criterion separating humans into two distinct groups without intersections presupposes that every human can be categorised according to this criterion. Such a system is weakened by any individual it visibly fails to categorise." In light of the passage, which one of the following is the best interpretation of these sentences?

1)
Societies that categorise humans into two mutually exclusive groups would be undermined by individuals who do not fit this categorisation.

2)
The criterion used to categorise humans into two different groups can lead to a system that is weakened by any individual who is opposed to it.

3)
Systems that categorise individuals into two divergent groups without any commonality assume that there may be individuals that cannot be categorised.

4)
Categorisation criteria that separate humans into different groups create a system that can be weakened by individuals that fail to be categorised.

Q 11. The author identifies each of the following about deviant individuals EXCEPT that:

1) some societies that seemingly tolerate deviant individuals expect them not to disrupt the status quo.

2) in some societies, deviant individuals are forced to revert to what those societies tolerate.

3) some societies are willing to accept deviant individuals if they are willing to hide who they are.

4) in some societies, deviant individuals are accepted so long as they provide evidence of psychological testing.

Q 12. The "categorical symbols" mentioned in the passage are most likely to be which one of the following?

1) widely recognizable symbols that set the boundaries of human category created by society

2) the important cultural identities and symbols that are commonly accepted within a society

3) symbols that signify the categories that are not accepted within a society that is not tolerant

4) clearly identifiable symbols of a society that creates categorisation based on social inclusivity

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Direction (13-16): Study the following information and answer the questions that follow:

. . .Taxonomists may name a newly-described species after a person for a variety of reasons, including recognizing that person's role in discovering that species, acknowledging someone for a longstanding contribution to their field or showing respect to someone unrelated to the field but who the scientist personally likes. . . In many cases naming a species after someone is choosing to honour that person publicly—it is certainly widely perceived that way. . .

Should scientists publicly honour people who have committed human rights violations or other horrific crimes? And what can and should be done about species already named after such monsters?

Two recent examples brought this important and under-discussed issue to my attention. . . A local reptile with an inglorious common name: the common small-blotched lizard. . . Their scientific name is *Uta stansburiana*, named in 1852. They are named after Howard Stansbury, an explorer in the Army Corps of Engineers who led a famous expedition to study flora and fauna of what's now Utah and collected the type specimens of this lizard. By the standards of the International Code of Zoological Nomenclature, the formal scientific body involved in species names, naming a species after an explorer who collected the first specimens of a species is not only appropriate but fairly standard. However, while Stansbury was an influential naturalist, he was also a terrible person—he was a vocal supporter of and played a key role in a locally-infamous massacre of Timpanogos Native Americans in which more than 100 were killed. . . In 1851 a bird species [was named] after Confederate General John P. McCown, who was also involved in several atrocities against Native American tribes and would later (after the bird was named after him) become a leader in the fight to uphold chattel slavery in the U.S.

Experts in diversity, equity, and inclusion in STEM regularly discuss how lots of things that members of a majority demographic take for granted signal to historically underrepresented minority groups that they're not welcome in the academy. What message does it send prospective scientists from a Native American background that we honour people like Stansbury by naming a species after him? What message does it send to prospective scientists of African-American descent that we so honour people like McCown?. . .

Stansbury and McCown are far from the only historically problematic figures who scientists have honoured with a species name. There's even a beetle named after Adolf Hitler, and specimens have become a collectable item among neo-Nazis to the point that it's actually affecting wild populations of the species. . .

So what can we do about it?. . . Currently, there is no procedure. . .to change the scientific name of a species because that species is named after someone whose crimes against humanity offend the modern conscience, and the taxonomists I spoke to for this essay told me that they don't see this changing anytime soon. This is perhaps something we should think about; after all, "there's no way to do this under the current rules" doesn't mean it can't or shouldn't be done. At the very least, however, we should probably consider no longer naming "new" species after awful humans from this point forward.

Q 13. Which of the following assertions, if true, invalidates the author's reasoning?

1) The instances of species being named after awful persons are very few.

2) A person's achievement in one field should be evaluated in isolation.

3) It is not fair to judge people of history by the moral standards of today.

4) Scientists who did terrible acts have made a great contribution to science.

Q 14. The author lists all of the following as potential negative effects of the naming of species after someone who committed terrible acts, EXCEPT the:

1) wrong perception created in the mind of underrepresented groups.

2) lack of a message of inclusivity to potential future scientists.

3) reduction in representation of scientists belonging to minority groups

4) impact the name has on the population of the species.

Q 15. The author of the passage would be most likely to make which of the following recommendations to taxonomists?

1) They should consider the person's activities outside their scientific endeavours while considering naming a species after them.

2) They should consider naming the species after a person if the person has not committed any atrocities.

3) They should assume that the person who discovered the species might have committed at least some terrible acts.

4) They should consider a person's motivation to name the species with scepticism before deciding to honour him.

Q 16. "Their scientific name is *Uta stansburiana*, named in 1852." The author most likely considers this naming to be:

1) inaccurate

2) deceptive

3) illegitimate

4) indefensible

Q 17. Directions for question (17): The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

1. Advances in AI systems lead to the application of complex deep neural networks that outperform other algorithms in critical applications like predictive maintenance, healthcare or autonomous driving.
2. A taxonomy derived from an extensive literature review can structure the knowledge of possible attack and defence patterns to create a basis for analysing and implementing AI security for scientists and practitioners alike.
3. Unfortunately, the properties that render them so successful also lead to vulnerabilities that can make them the subject of adversarial attacks.
4. While the systems try to mimic human behaviour when transforming large amounts of data into decision recommendations, they remain black-box models, so humans often fail to detect adversarial behaviour patterns in the model training process.

Q 18. Directions for question (18): The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and keyin this sequence of four numbers as your answer.

1. Not only is the god Marduk*belnemeqi*, “master of wisdom”, but he is also *belshipti*, “master of exorcism” par excellence.
2. The concept of “wisdom” does exist, and the closest equivalent phrase in Akkadian to “philosopher” would be *belnemeqi*, meaning “master of wisdom”, which happens to be a title applied to the god Marduk, but never given to any Babylonian scholar or savant.
3. Within the Babylonian *Weltanschauung*, only a god could be a real “master of wisdom” since no human could attain such intellectual heights.
4. Babylonians had no word for “philosophy”, nor do any other Semitic language, for that matter, have a “lover of wisdom”.

Q 19. Directions for question (19): The passage given below is followed by four summaries. Choose the option that best captures the author’s position.

A significant number of the difficulties we are dealing with right now can be traced back to the fact that we do not share common values or objectives. The decline of the values that were upheld during earlier eras has been attributed, in large part, to the influence of positivists, pragmatists, and materialists. In spite of the fact that there are still traces of previous values, nothing has been brought forth to take their place.

1)
A lack of common values or objectives can be traced back to earlier times, wherein the influence of many led to the decline of those values, which cannot be brought back.

2)
Many of our difficulties are traced back to the lack of unifying values, and the values of previous times have been eroded, with nothing being introduced to fill that void.

3)
Most of the difficulties regarding the lack of shared common objectives are due to the complete desecration of values of earlier eras, and nothing can take their place.

4)
The current difficulties that we are dealing with are the lack of values or objectives that are aligned with those of an earlier era, and no new values have replaced them.

Q 20. Directions for question (20): Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.

1. Periodically re-enacted through rituals, they reinforce the group's identity and social cohesiveness and, through further re-telling, preserve and expand the wisdom of the community.
2. Almost every civilization and religion has stories about the origin of the universe and of the human race offering supernatural "explanations" of the natural order and cosmic forces.
3. They do not represent a "primitive," precritical, prescientific stage in the intellectual development of humankind, nor are they always connected with religion and rituals.
4. These stories do not merely transmit a set of ideas clothed in metaphors and allegories but also make a truth claim, albeit implicit, about them as embodying the communal fund of wisdom.

5. They convey in dramatic form the self-understanding of a particular group of individuals bound together by a common race or language, or political arrangement.

Q 21. Directions for question (21): The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

1. In secret, behind closed doors, Afghanistan is still breathing.
2. But some things are different now.
3. Afghanistan is not far from becoming the country that it was in the Taliban's first regime.
4. Few in rural communities have access to the internet, but those who do can organize and resist in new ways.

Q 22. Directions for question (22): The passage given below is followed by four summaries. Choose the option that best captures the author's position.

Based on my experience as a poet and my scientific background as a creativity researcher, I propose a theory of the psychological dynamics involved in the creation of poetry. The theory suggests that, at the moment of facing a writing task, the poet must deal with three working spaces for creative problem-solving: the internal world, the poetic tradition, and originality. In these three working spaces, mind wandering plays an extremely important role as a dynamic force that helps the poet to advance from the raw (personal) material of emotion to the polished (and universal) material of poetry.

1)
A poet moves from an unpolished material of emotion to the polished material of poetry with the aid of mind wandering in the three working spaces for creative problem-solving— the internal world, the poetic tradition, and originality.

2)
A poet uses psychological mind-wandering techniques within each of the working spaces for creative problem-solving— the internal world, the poetic tradition, and originality—to convert raw emotions into polished poetry.

3)
A poet with a scientific background can use mind wandering, a dynamic force that helps the poet move from personal material of emotion to universal material of poetry within the spaces of the internal world, the poetic tradition, and originality.

4)
A poet employs psychological dynamics wherein the three working spaces of problem-solving— the internal world, the poetic tradition, and originality—are used to advance from the raw material of emotion to the polished material of poetry.

Q 23. Directions for question (23): Five jumbled up sentences related to a topic is given below. Four of them can be put together to form a coherent paragraph. Identify the odd one out and key in the number of the sentence as your answer.

1. These misrepresentations reflect neither the reality of nomadic life nor the totality of the relationship between nomadic and settled people, which has been both complimentary and interdependent for most of the past 10,000 years.
2. Most reports of nomadic peoples relate to times of conflict, as if war were the only instance settled chroniclers thought it worth mentioning these “other” people.
3. Their diverse and remarkable stories are set in some of the world’s most extreme landscapes, along a chronological line that stretches back to what we now believe was the beginning of monumental architecture.
4. It also lets us glimpse another way of living, one that is nimble, flexible and in balance with the natural world—the way the “other” branch of humankind has chosen from the time that we all hunted in the gardens of the deep past.
5. Reevaluating our wandering “other half” allows us to see what we have learned from people who live on the move and shows us how much we have gained from cooperation.

Q 24. Directions for question (24): The passage given below is followed by four summaries. Choose the option that best captures the author’s position.

In 2000, two researchers, Peter Ward and Donald Brownlee, published a book that offered a possible explanation for our species’ apparent aloneness. It is called *Rare Earth: Why Complex Life is Uncommon in the Universe*. Ward, a palaeontologist by training, and Brownlee, an astronomer, combined forces to produce what has come to be termed the Rare Earth hypothesis. The Rare Earth hypothesis suggests that the unique conditions of Earth that allowed complex life to arise and flourish are exceptionally uncommon — and they’re unlikely to occur throughout the universe widely. Ward and Brownlee postulated that many fortuitous features of Earth, our Sun, and the solar system led to our highly favourable and surprisingly stable ecosystem.

1)
According to the Rare Earth hypothesis, the accidental features of the Earth, Sun and the solar system created a stable ecosystem which allowed complex life on Earth.

2)
According to the Rare Earth Hypothesis, for life to occur anywhere else in the universe, there should be many fortuitous features that need to create a stable ecosystem.

3)
According to the Rare Earth Hypothesis, there are many advantageous conditions that led to Earth being the rare planet in the universe wherein life forms live and thrive.

4)
According to the Rare Earth hypothesis, the conditions on Earth that led to complex life are extremely rare and unlikely to be found elsewhere in the universe.
