

43-46: Answer these questions according to the passage below.

Millions of years ago, what is now the Ocucaje Desert in Peru was a gathering place for fantastical sea creatures: whales that walked, dolphins with walrus faces, sharks with teeth as large as a human face, red-feathered penguins, aquatic sloths. They reproduced in the gentle waters of a shallow lagoon shielded by hills that still wrap across the landscape today. Eventually, tectonic shifts lifted the land from the sea. More than 10,000 years ago, people arrived. With them came art, religion and monumental architecture. Researchers have pieced together these snapshots of the distant past from the bones and tombs found scattered in the Pisco Basin, a thick layer of fossil-rich sediment that stretches across 200 square miles of land between the Andes Mountains and the Pacific coast of southern Peru. Discoveries from the region have come at a **brisk** pace in recent decades, with at least 55 new species of marine vertebrates found so far. Recently, palaeontologists have unveiled what may be the region's most remarkable find yet: *Perucetus colossus*, a manatee-like whale now considered the heaviest animal known to have existed. "There seems to be always something new coming from Peru," said Nicholas Pyenson, a palaeontologist and curator of marine mammal fossils at the Smithsonian Institution. It's not just the abundance of fossils that makes the region special, he said: "In many cases they reflect species we see nowhere else, and we don't really know why."

43. It is clear from the passage that Pisco Basin in Peru

- A) is home to many interesting fossils from millions of years ago
- B) was once a mountain plate before it ended up being a lagoon
- C) was discovered by the people of the Ocucaje Desert thousands of years ago
- D) is among the highest places in the Andes Mountains
- E) has been under scrutiny by scientists from all over the world

44. Which of the following is true about the recent findings in Peru?

- A) They are ordinary finds for experienced palaeontologists like Nicholas Pyenson.
- B) Their importance lies in the place where they are unearthed.
- C) One of them may turn out to belong to the heaviest animal that has ever existed.
- D) They are what palaeontologists generally find in mountainous regions.
- E) Palaeontologists wouldn't have found them if it weren't for the people currently living in Peru.

45. The underlined word 'brisk' in the passage is closest in meaning to ----.

- A) overdue
- B) tremendous
- C) assertive
- D) cynical
- E) rapid

46. Which of the following can be inferred from the passage about the findings in Peru?

- A) They are so fantastic that some scientists doubt their authenticity.
- B) They come from a very limited piece of land that is 200 miles across.
- C) Their distinctiveness has a lot to do with the fact that Peru is located by the Pacific Ocean.
- D) Their uniqueness is such that even scientists are at a loss for words when it comes to explaining why.
- E) The way they have been unearthed is a little unorthodox in palaeontological terms.

47-50: Answer these questions according to the passage below.

California has been at the epicentre of battling wildfires, which have become more frequent, more destructive, and larger, since 1980. In 2021, California faced "unprecedented" fire conditions, with one fire alone burning more than 3,885 sq km. Well-timed rainfall can bring some relief, even as the wider situation remains severe. The wildfire season in 2022 was described as a "mild" for the state – almost 1,250 sq km burned compared to the five-year average of 9,300 sq km. This year, August was cooler and wetter than average in California. Still, more than a thousand sq km's have burned, and four people have died. Factors such as hotter, drier conditions due to climate change are key drivers in increasing the risk and severity of the fires, research shows. But there are also studies suggesting that land management can play an important role, as the build-up of dead trees and dry shrubs creates dangerous fuel that can lead to big, severe fires. Land managers traditionally relied on herbicide and manual labour to thin out brush and reduce dry fuel, but agencies and city officials are also trying out other, potentially more sustainable and cost-effective methods – such as goats. "Goats are especially useful in places like California and the Mediterranean because of the shrubs – goats are very well equipped for that, they have the right mouths," says Karen Launchbaugh, an ecology professor at the University of Idaho. "They're just designed to eat shrubs." Unlike other ungulates, goats have narrow, deep mouths which allows them to selectively harvest woody shrubs. They stand on hind legs to graze at an average height of 2m, and have dexterous tongues and lips.

47. It is clear from the passage that wildfires ----.

- A) have had tremendous economic impacts on the state of California
- B) aren't a new phenomenon for California, which has been struggling with them for a long time
- C) are dangerous for humans as they kill an average of four people every year
- D) happen mainly because of land management practices in California
- E) have diminished to a negligible number in the last three years in California

48. According to the passage, the severity of wildfires in California ----.

- A) has dramatically increased, especially in the last a few years
- B) saw its top point in 2021, when 9,300 sq km of land burned down
- C) depends on two factors, one of which is more decisive
- D) is measured by how many casualties they lead to each year
- E) depends on the wildfire season, which takes place mainly in late spring

49. Which of the following is true about the use of goats in land management?

- A) The fact that they feed on shrubs that cause wildfires makes them a very valuable asset.
- B) It is a little costly because land management officials have to hire them in big numbers.
- C) It makes the job of firefighters more difficult as they have to rescue goats among burning dry shrubs.
- D) It has been first proposed by Karen Launchbaugh from the University of Idaho.
- E) It is getting more and more difficult due to hot, dry weather stemming from climate change.

50. Which of the following best describes the purpose of the author?

- A) To compare the intensity and severity of wildfires in California in recent years
- B) To cite the work of a scientist who has been working on goats that eat shrubs
- C) To inform the readers about wildfires in California and a possible solution to them
- D) To explain in detail how much damage wildfires inflict on California's economy
- E) To give statistical data related to recent wildfires in California

51-54: Answer these questions according to the passage below.

Without the constant tug of gravity on our limbs, muscle and bone mass quickly begins to diminish in space. The most affected are those muscles that help to maintain our posture in our back, neck, calves and quadriceps – in microgravity they no longer have to work nearly as hard and begin to atrophy. After just two weeks muscle mass can fall by as much as 20% and on longer missions of three-to-six months it can fall by 30%. Similarly, because astronauts are not putting their skeletons through as much mechanical strain as they do when subject to Earth's gravity, their bones also start to demineralise and lose strength. Astronauts can lose 1-2% of their bone mass every month they spend in space and up to 10% over a six-month period (on Earth, older men and women lose bone mass at a rate of 0.5%-1% every year). This can increase their risk of suffering fractures and increase the amount of time it takes to heal. It can take up to four years for their bone mass to return to normal after returning to Earth. To combat this, astronauts undertake 2.5 hours a day of exercise and intense training while in orbit on the International Space Station (ISS). This includes a series of squats, deadlifts, rows and bench presses using a resistive exercise device installed in the ISS's "gym," alongside regular sessions tethered to a treadmill and on an exercise bike. They also take diet supplements to help keep their bones as healthy as possible.

51. Which of the following can be inferred about gravity from the passage?

- A) Its absence in space means a great physical advantage for us.
- B) Two weeks of its absence in space causes astronauts to lose 30% of their muscles.
- C) It plays a big role in keeping our muscle and bone density in place.
- D) Its constant pull on our muscles causes us to lose some of them.
- E) The relation between its absence and atrophy in our muscles is controversial.

52. It is clear from the passage that astronauts' losing almost 10% of their bone mass over a six-month period ----.

- A) means that they will have lost at least 10% of their muscles upon returning to Earth
- B) is absolutely inevitable and irreversible even after their return to Earth
- C) is actually good for them as they can come up with stronger bones in four years' time
- D) is not good for them as they run the risk of suffering fractures more than they would on Earth
- E) happens because they delay doing exercises that are necessary to keep their bones intact

53. Why do astronauts on the ISS exercise 2.5 hours a day?

- A) To prevent bone and muscle loss
- B) To keep their body in good shape
- C) To increase their bone density even more
- D) To fight the boredom in the cramped ISS
- E) To increase their chances of survival in space

54. Which could be the best title for this passage?

- A) How Astronauts Pass Time in Space
- B) Gravity: Both a Curse and a Blessing
- C) How to Survive Long Space Travel
- D) The ISS: Nothing is As It Seems
- E) Space Travel's Heavy Toll on Health

55-58: Answer these questions according to the passage below.

Stars in our universe form when giant clouds of dust and gas gradually merge under gravity. Eventually, regions of a cloud become so dense that they squeeze atoms of hydrogen together and kick-start nuclear fusion, forming the core of a star. In less dense areas, a more miniscule version of fusion can occur in smaller objects. These are called brown dwarfs. However, the latest spectacle, observed by the James Webb Space Telescope, is an agglomeration of nearly 150 free-floating objects amid the Orion Nebula, not far in mass from Jupiter. Dozens of these worlds are even orbiting each other. The scientists who discovered them have called them Jupiter Mass Binary Objects, or JuMBOs, and the reason for their appearance is a complete mystery. JuMBOs appear to be a smaller class of gaseous object. While brown dwarfs can grow to about 13 times the mass of Jupiter, the new objects can get as small as about half the planet's mass, with temperatures of more than 1,000 degrees Fahrenheit. They are separated by about 200 times the distance between the Earth and the Sun, orbiting each other on paths that take more than 20,000 years to complete. Were they alone in space, they might be easier to explain, but their appearance in pairs, 42 of which are seen by the Webb telescope in the Orion Nebula, is inexplicable. According to existing scientific models, it should not be possible to form single objects so small directly from clouds of dust and gas, let alone in pairs. Even if they were ejected planets – violently kicked from young stars because of gravitational forces – it is similarly unclear why there would be so many couplets.

55. Why does the author of the passage start the passage with a definition of how stars form?

- A) To inform the readers about the difference between the formation of stars and brown dwarfs
- B) To emphasize the value of knowing the early formation of our universe
- C) To mention a well-known phenomenon called JuMBOs by scientists
- D) To introduce a new form of celestial body that has recently been discovered
- E) To emphasize the importance of the discoveries made by the James Webb Space Telescope

56. It can be concluded from the passage that existing scientific models ----.

- A) have been able to come up with a logical explanation for JuMBOs
- B) find the high number of JuMBOs within the Orion Nebula a normal phenomenon
- C) can easily make guesses about the possible orbit of JuMBOs found in the Orion Nebula
- D) are inadequate to explain the many couplets observed within the Orion Nebula
- E) are not in harmony with the technology brought by the James Webb Space Telescope

57. Which of the following can be said about the Orion Nebula according to the passage?

- A) It contains 42 celestial bodies named JuMBOs by scientists.
- B) It is at a distance from our galaxy that makes it possible for scientists to make detailed observations.
- C) It is the only celestial formation that contains a lot of ejected planets.
- D) Its proximity to Jupiter makes it easier for the James Webb Telescope to observe it more clearly.
- E) It is in a part of the universe that makes new star formations easier.

58. The passage is mainly about ----.

- A) the technological breakthrough brought about by the James Webb Space Telescope
- B) a number of Jupiter-like objects that have been detected inside our galaxy
- C) an extraordinary celestial formation spotted in the Orion Nebula
- D) the advantages and disadvantages of working with the existing scientific model
- E) the way the James Webb Space Telescope detects alien and unorthodox objects in outer space

59-62: Answer these questions according to the passage below.

Messages from teachers that focus on failure are known as “fear appeals”: they can create a strong fear of failure in students. Teachers use fear appeals more often when they believe that students will interpret the message as threatening and when they believe their classes are less engaged. The intention may be to shock students into engaging in their studies. Fear can be a powerful motivator. When a student believes that doing well in a test is important, and is optimistic about doing well, a fear appeal – such as: “If you fail your University Entrance Exam, you will find it difficult to get a good job” – can be a good thing. It can motivate students to work hard. We describe this as a student interpreting the message as a challenge. But other students, who also see exam results as very important, may lack confidence that they will do well. For these students, fear appeals can trigger feelings of anxiety and hopelessness. They can lose motivation, procrastinate and worry. Ultimately, their achievement is lower. Researchers describe this as a student interpreting the message as a threat. Other students simply disregard fear appeals. They may not care about their exams, perhaps because they have already disengaged from their studies – or are so supremely confident they have no doubt they will succeed.

59. Which of the following is true about the use of fear appeals by teachers?

- A) It depends on mainly two factors.
- B) It always brings out positive results.
- C) It ends up with anxiety on students' end.
- D) It determines the success rates of students.
- E) It is used by teachers who have low self-confidence.

60. We learn from the passage that the way a student is influenced by fear appeals ----.

- A) has a lot to do with how their teacher “sells” the appeal
- B) depends very much on the ingredient of the appeal and teacher's attitude
- C) will definitely impact their future careers if they fail the University Entrance Exam
- D) has to do with how much shock they experience upon hearing it from the teacher
- E) depends on whether they take the message from the appeal as a threat or a challenge

61. Which of the following is not among the adverse effects of fear appeals on students?

- A) Loss of drive to study
- B) Delaying things till the last minute
- C) Lower success
- D) Concern for success
- E) Working hard

62. The purpose of the writer of the passage is ----.

- A) to contrast the two main effects of fear appeal on students
- B) to give information about a tactic teachers use to motivate students
- C) to list both the positive and negative effects of teachers' motivational efforts on students
- D) to familiarize the readers with a fairly new concept in education
- E) to criticize teachers for using an unscientific method to motivate their students

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

63. Damien:

- Did you know that your microbiome, I mean the microbes that reside in your gut and elsewhere in your body, outnumber human cells by a staggering 10 to 1?

Carla:

- ----

Damien:

- What? I thought their mass adds up to 2 kilograms of our body weight.

Carla:

- I also did, but we fell into factoid traps and put aside real science. I guess we need to read real science magazines rather than popular ones.

Damien:

- You have a point. Do you have any recommendations?
- A) What is true is that there is a lot we still don't know about our gut microbiome.
- B) It turned out to be a lie, and so are the products they are marketing to boost your microbiome.
- C) If I were you, I would take such bold claims with generous pinch of salt?
- D)** Not even close: it is more like 1 to 1 and the microbiome weighs 500 grams at most.
- E) It is getting clear that the microbiome has a hand in everything from our mood to our risk of arthritis.

64. Kate:

- I am so frustrated! The other day the ceiling floor in the auditorium almost collapsed on the professor.

Jim:

- Wow! Are they alright?

Kate:

- ----

Jim:

- No way! Something needs to be done about the university budgets right away! How did the professor continue the lecture then?

Kate:

- Another one was brought from a classroom and placed on an armchair. I can't believe we should have to deal with such issue in the 21st century!
- A)** The professor wasn't injured, but we had to relocate to the adjacent auditorium, where there wasn't an overhead projector!
- B) The professor was alright at first glance, but she had to stop the lecture after we relocated to the adjacent auditorium as she started to tremble.
- C) The professor was fine as nothing dropped on her, but the lecture had to be left unfinished under the circumstances.
- D) The professor was fine, but we found out after relocating to another venue that she had lost her glasses while running out of the auditorium.
- E) The professor didn't take any injuries, but I cannot say the same about her psychological health at the moment.

65. Chris:

- I don't think we should be making a lot of fuss about the climate change: Nothing important has happened so far as far as the weather events are considered.

Isaac:

— ---

Chris:

- What does it have to do with climate change?

Isaac:

- Everything! Mosquitos that spread the disease love the warm weather, and now the virus is seen even in Northern Europe, where it has never been seen before. It's all because of climate change.

Chris:

- Well, I haven't thought of it from this aspect before.

- A) Lots of other things are happening due to global warming and ensuing climate change.
- B) Migratory birds, which ferry cargoes of pathogens across continents are changing the timing and routed of their journeys.
- C) As always when it comes to climate change, the health effects are likely to hit hardest in hotter, poorer parts of the world.
- D) As if climate change was all about weather events! What about vector-borne diseases like dengue fever?
- E) As far as infectious diseases and the effect of climate change on them are concerned, we are far from powerless in the face of the growing threats.

66. Clare:

- I think red meat and processed red meat products should be taxed heavily.

Beth:

- Are you serious? You are proposing something that will cause a revolt in the country.

Clare:

— ---

Beth:

- What you say is all sensible and responsible, but it will never catch on in this country.

Clare:

- I guess you are right. I should stop making demands as if we were living in an ideal world.
- A) But those eating red meat should be able to afford a few extra bucks for the taxes that need to be introduced.
 - B) Since low-income households spend a larger share of their earnings on food, taxes on meat might be expected to hit them harder.
 - C) Eating large quantities of red and especially processed meat is unhealthy and increases your risk of developing a number of diseases.
 - D) Public aversion to government intervention on meat is understandable, and consumers should not shoulder the burden of making the food system more sustainable.
 - E) I am a vegetarian and the way animals are slaughtered for the selfish consumption of common people is unacceptable.

67. Zachary:

- Now that there are Starlink satellites, the Internet will be more accessible to people who live in places where internet infrastructure is not available.

Donald:

— ---

Zachary:

- How so? You have managed to come up with a negative thing yet again!

Donald:

- It is not me: Astronomers have been complaining that low-orbit satellites have been interfering with their astronomical observations as the sheer number of bright satellites creates light pollution.
- A) I am glad to hear that, but there will be some concern for the cost as these services are pricey.
- B) Tell it to the astronauts working at the International Space Station: they are not happy with all the space debris coming from obsolete satellites in the orbit.
- C) We might as well ask it to the governments of those people as they wouldn't be happy to lose their leverage on the provision of the Internet.
- D)** I am not as optimistic as you are because there are unexpected consequences of those satellites.
- E) The way I see it those satellites will never be able to reach great masses of people.

68-71: For these questions, choose the best rephrased form of the given sentence

68. Theft from grocery and convenience shops in the UK has been building for many years because overburdened policing and criminal justice systems can't cope with a rise in organised crime and drug-fuelled stealing.

- A)** Theft from grocery and convenience stores in the UK has been on the rise for several years due to the inability of the overstretched law enforcement and criminal justice systems to handle the growing problem of organized crime and theft driven by drug addiction.
- B) Stealing from grocery and convenience stores in the UK has been on the rise for several years due to the fact that the overstretched police and criminal justice systems are reluctant to handle the increasing incidence of crime and theft driven by drug addiction.
- C) Over the course of the last decade, theft from grocery and convenience stores in the UK has been on the rise due to the strain on law enforcement and the criminal justice systems, which are struggling to handle the increase in organized criminal activity and theft driven by drug addiction.
- D) There has been a steady increase in theft from grocery and convenience stores in the UK in the last few years due to the surge in the workload of law enforcement and the criminal justice systems, which are finding it difficult to tackle the increase in organized criminal activity and theft driven by drug addiction.
- E) If the workload of law enforcement and the criminal justice systems weren't so high, they would cope with the increase in organized criminal activity and theft driven by drug addiction, which are the drivers for the increase in theft from grocery and convenience stores in the UK in the last few years.

69. Different from what any ordinary would expect them to do, microbes – the miniscule organisms that are found all around us but are invisible to the naked eye – play a vital role in capturing carbon and affecting the climate.

- A) As opposed to the expectations of ordinary people about them, microbes, which are tiny organisms that are found everywhere we look at but invisible to us, might have a crucial role in capturing carbon and thus affecting the climate.
- B) Microbes, tiny organisms found everywhere but invisible to the naked eye, are currently playing an indispensable role in holding carbon and influencing the climate, but ordinary people take them for granted.
- C) Contrary to what the average person might anticipate, microbes, which are tiny organisms present everywhere but not visible to the naked eye, have a crucial role in capturing carbon and influencing the climate.
- D) Although microbes, tiny organisms found everywhere but invisible to the naked eye, are playing an essential role in capturing carbon and influencing the climate, ordinary people play down their contribution.
- E) As much as microbes, tiny organisms found everywhere but invisible to the naked eye, play a crucial role in capturing carbon and influencing the climate, ordinary people think otherwise and don't care much about them.

70. One of the obstacles in expanding Peru's tourism is that many archaeological sites can be reached only by intense hikes, so Machu Picchu remains the most popular spot in the country.

- A) One of the challenges in boosting Peru's tourism industry is that numerous archaeological sites can only be accessed through strenuous hikes, which is why Machu Picchu continues to be the country's most visited destination.
- B) Expanding Peru's tourism faces a significant hurdle as certain archaeological sites are accessible only via demanding hikes, which is why Machu Picchu continues to be the country's foremost attraction.
- C) Intensifying tourism in Peru faces a significant barrier, as certain archaeological sites can only be accessed via demanding hikes, thus making Machu Picchu the country's primary tourist attraction.
- D) Machu Picchu is the most popular touristic hub in Peru because it is only possible to reach many archaeological sites in the country through a strenuous hike, which deters many tourists.
- E) A major impediment to the growth of tourism in Peru is the fact that several archaeological sites are accessible only through challenging hikes, which is why Machu Picchu continues to be the most visited destination in the country.

71. Spotted young animals tend to be more common in species that live in habitats with some three-dimensional structure, such as grasslands and forests, but less common in environments that are uniform or featureless, like open tundra or pack ice.

- A) Young animals with distinctive markings are typically more prevalent among species residing in habitats characterized by some degree of three-dimensional structure, such as grasslands and forests, and less common in uniform or featureless environments like open tundra or pack ice.
- B) Young animals with distinct markings are typically more prevalent in species inhabiting environments with some three-dimensional structure, such as grasslands and forests; in contrast, they are not seen in uniform or featureless environments like open tundra or pack ice.
- C) While young animals with spots are typically more prevalent among species residing in habitats characterized by some degree of three-dimensional structure, such as grasslands and forests, they are not widely seen in uniform or featureless environments like open tundra or pack ice.
- D) The presence of spotted young is typically more frequent in species that inhabit environments with some degree of three-dimensional structure, such as grasslands and forests, while it is next to none in uniform or featureless environments like open tundra or pack ice.
- E) Habitats with some degree of three-dimensional structure, such as grasslands and forests are typically where young animals with spotted hides are seen, but it is impossible to see these individuals in uniform or featureless environments like open tundra or pack ice.