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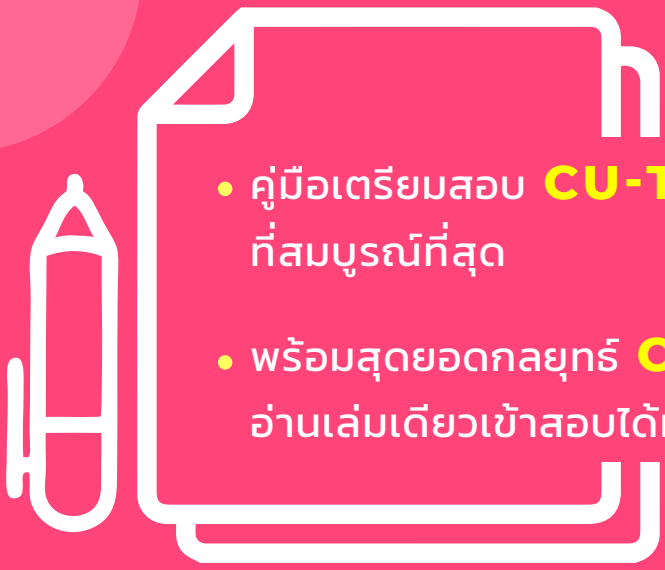

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แนวข้อสอบ
Reading & Writing

ตัวอย่างข้อสอบ ชุดที่ 1

[READING]

Passage I (Quesstion 1-8)

Choose the best answer for each question.

According to Archimedes' principle, any floating object displaces its own weight of fluid. For example, an ice cube in a glass of water does not cause the glass to overflow as it melts. But because sea water is warmer and more salty than floating ice, changes in the amount of this ice are having an effect on global sea levels.

The loss of floating ice is equivalent to 1.5 million Titanic-sized icebergs each year. However, the study shows that the spread across the global oceans, recent losses of floating ice amount to a sea level rise of just 49 microns (μm) per year -- about a hair's breadth.

According to lead author Professor Andrew Shepherd, of the University of Leeds, it would be unwise to **discount this signal**. "Over recent decades there have been dramatic reductions in the quantity of Earth's floating ice, including collapses of Antarctic ice shelves and the retreat of Arctic sea ice," said Prof. Shepherd.

"These changes have had major impacts on regional climate and, because oceans are expected to warm **considerably** over the course of the 21st century, the melting of floating ice should be considered in future assessments of sea level rise."

Professor Shepherd and his team used a combination of satellite observations and a computer model to make their assessment. They looked at changes in the area and thickness of sea ice and ice shelves, and found that the overall signal amounts to a 742 cubic kilometres per year reduction in the volume of floating.

Because of differences in the density and temperature of ice and sea water, the net effect is to increase sea level by 2.6% of this volume, equivalent to 49 microns per year spread across the global oceans.

The greatest losses were due to the rapid retreat of Arctic Sea ice and to the collapse and the thinning of ice shelves at the Antarctic Peninsula and in the Amundsen Sea.

(SOURCE: University of Leeds. "Melting icebergs in polar oceans causing sea level rise globally, new assessment finds." *ScienceDaily*, 28 Apr. 2010.)

1 To which of the following Archimedes' principle CANNOT be applied ?

1. when an ice cube in a glass of water melts
2. when ice in the ocean melts
3. when a frozen mass of water in a freshwater lake starts melting
4. when a mass of ice in a container full of water melts

2 Which couple of words best describe the impact of melting ice on the rise of sea level and on regional climate respectively ?

1. significant: considerable
2. insignificant: dramatic
3. insignificant: slight
4. significant: slight

3 According to the passage, which of the following statements is correct ?

1. The amount of frozen ice is equal to 1.5 million Titanic-sized icebergs annually.
2. A 742 cubic kilometres per year reduction is the volume of underwater ice lost each year.
3. In the 22nd century, the melting of floating ice should be considered in future assessments of sea level rise.
4. A sea level rise of 49 microns (μm) per year will be a result of losses of floating ice amount.

4 What is the major suggestion of Sheperd ?

1. Number of existing ice should be taken into account in future assessments of sea level rise.
2. Various equipment should be used in future assessments of sea level rise.
3. The melting of floating ice should not be ignored in consideration regarding sea level rise in the future.
4. Very huge sizes of melting icebergs should be closely watched.

5 Which of these terms is NOT the factor contributing to the rise of global sea level ?

1. temperature
2. salty
3. density
4. breadth

6 The word “considerably” in line 16 could best be replaced by....

1. moderately
2. intermittently
3. drastically
4. apparently

7 What does the phrase “this signal” in line 11 refer to ?

1. dramatic sea level rise caused by losses of floating ice
2. slight sea level rise caused by losses of floating ice
3. the emergence of Titanic-sized icebergs
4. the daily loss of Titanic-sized icebergs

8 Which of the following words has the closest meaning to the word "discount" in line 11 ?

1. reduced
2. used
3. ignored
4. studied

Passage II (Question 9 – 18)

"Shark fins are primarily derived through finning, a practice where by shark fins are removed at sea and the rest of the **mutilated** animal is thrown back in the water to die," said co-author Dr. Neil Hammerschlag, research assistant professor of Marine Affairs & Policy and director of the RJ Dunlap Marine Conservation Program (RJD) at UM. "Estimates suggest that fins from as many as 70 million sharks end up in soup. As a result, many shark species are on the road to extinction. Because sharks play important roles in maintaining balance in the oceans, not only is shark fin soup injurious to the marine environment, but our study suggests that it is likely harmful to the people who are consuming **them**."

Seven species of shark were tested for this study: blacknose, blacktip, bonnethead, bull, great hammerhead, lemon, and nurse sharks. Samples were collected from live animals in waters throughout South Florida.

"The concentrations of BMAA in the samples are a cause for concern, not only in shark fin soup, but also in dietary supplements and other forms ingested by humans," says study co-author Prof. Deborah Mash, Director of the UM Miami Brain Endowment Bank.

The Bank supports basic and clinical research and holds one of the world's largest collections of postmortem human brains **encompassing** a wide range of neurological disorders. In 2009, Mash and her co-authors published a study in the journal Acta Neurological Scandinavica, demonstrating that patients dying with diagnoses of Alzheimer's Disease and ALS had unusually high levels of BMAA in their brains, up to 256 ng/mg, whereas normal healthy aged people had no BMAA or only trace quantities of the toxin present. "BMAA was first linked to neurodegenerative diseases in Guam, which resulted in the progressive loss of structure and function of neurons."

The shark study found a similar range and even higher BMAA in the fins tested, levels of between 144 and 1836 ng/mg of BMAA, which overlapped the levels measured in the brains of the Alzheimer's and ALS victims. Coincidentally, this level fits with the BMAA levels in fruit bats examined by Paul Cox in Guam, animals which concentrate BMAA from their diet of cycad seeds. He linked ingestion of fruit bats to the severe ALS/Parkinsonism dementia that **afflicted** local **indigenous** people.

"Not only does this work provide important information on one probable route of human exposure to BMAA, it may lead to a lowering of the demand for shark fin soup and consumption of shark products, which will aid ocean conservation efforts," added Hammerschlag.

(SOURCE: University of Miami, Rosenstiel School of Marine and Atmospheric Science. "Neurotoxins in shark fins: A human health concern." *ScienceDaily,* 23 Feb. 2012.)

9 The word “mutilated” in line 2 is closest in meaning to....

1. useful
2. injured
3. large
4. dead

10 What is the primary use of fins mentioned in the passage ?

1. for exhibition
2. for conservation
3. for breeding
4. for consumption

11 According to the passage, what is the researchers’ opinion towards the intake of shark fins ?

1. to encourage
2. to discourage
3. to prohibit
4. to give a favour

12 We can infer from the passage that which of the following organs is affected by BMAA ?

1. heart
2. kidney
3. abdominal
4. brain

13 According to the author, which word can best describe how the result of the information disclosure has an effect to the decrease in shark fin intake ?

1. direct
2. unbelievable
3. indirect
4. harmful

14 The word “afflicted” in line 36 could best be replaced by....

1. treated
2. affected
3. purchased
4. eaten

15 The word “them” in line 11 is used to refer to....

1. sharks
2. species
3. oceans
4. fins

16 Apart from causing some diseases in humans, what is the other effect of the decrease of sharks ?

1. ecological effect
2. economic aspect
3. moral problem
4. health problem

17 The word “encompassing” in line 21 can be best replaced by....

1. excluding
2. including
3. diagnosing
4. encountering

18 The word “indigenous” in line 36 means the same as....

1. ingenious
2. foreign
3. native
4. abnormal

Passage III (Question 19 – 30)

A set of recent papers, many of which draw on data from NASA's Cassini spacecraft, reveal new details in the emerging picture of how Saturn's moon Titan shifts with the seasons and even throughout the day. The papers, published in the journal *Planetary and Space Science* in a special issue titled "Titan through Time," show how this largest moon of Saturn is a cousin -- though a very peculiar cousin -- of Earth.

"As a whole, these papers give us some new pieces in the jigsaw puzzle that is Titan," said Conor Nixon, a Cassini team scientist at the NASA Goddard Space Flight Center, Greenbelt, Md., who co-edited the special issue with Ralph Lorenz, a Cassini team scientist based at the Johns Hopkins University Applied Physics Laboratory, Laurel, Md. "They show us in detail how Titan's atmosphere and surface behave like Earth's -- with clouds, rainfall, river valleys and lakes. They show us that the seasons change, too, on Titan, although in unexpected ways."

A paper led by Stephane Le Mouelic, a Cassini team associate at the French National Center for Scientific Research (CNRS) at the University of Nantes, highlights the kind of seasonal changes that occur at Titan with a set of the best looks yet at the vast north polar cloud.

A newly published selection of images -- made from data collected by Cassini's visual and infrared mapping spectrometer over five years -- shows how the cloud thinned out and retreated as winter turned to spring in the northern hemisphere.

Cassini first detected the cloud, which scientists think is composed of ethane, shortly after its arrival in the Saturn system in 2004. The first really good opportunity for the spectrometer to observe the half-lit North Pole occurred on December 2006. At that time, the cloud appeared to cover the North Pole completely down to about 55 degrees north latitude. But in the 2009 images, the cloud cover had so many gaps it unveiled to Cassini's view the hydrocarbon sea known as Kraken Mare and surrounding lakes.

"Snapshot by snapshot, these images give Cassini scientists concrete evidence that Titan's atmosphere changes with the seasons," said Le Mouelic. "We can't wait to see more of the surface, in particular in the northern land of lakes and seas."

In data gathered by Cassini's composite infrared mapping spectrometer to analyze temperatures on Titan's surface, not only did scientists see seasonal change on Titan, but they also saw day-to-night surface temperature changes for the first time. The paper, led by Valeria Cottini, a Cassini associate based at Goddard, used data collected at a wavelength that penetrated through Titan's thick **haze** to see the moon's surface. Like Earth, the surface temperature of Titan, which is usually in the chilly mid-90 kelvins (around minus 288 degrees Fahrenheit), was significantly warmer in the late afternoon than around dawn.

"While the temperature difference -- 1.5 kelvins -- is smaller than what we're used to on Earth, the finding still shows that Titan's surface behaves in ways familiar to us earthlings," Cottini said. "We now see how the long Titan day (about 16 Earth days) reveals itself through the clouds."

A third paper by Dominic Fortes, an outside researcher based at University College London, England, addresses the long-standing mystery of the structure of Titan's interior and its relationship to the strikingly Earth-like range of geologic features seen on the surface. Fortes constructed an array of models of Titan's interior and compared these with newly acquired data from Cassini's radio science experiment.

The work shows the moon's interior is partly or possibly even fully differentiated. This means that the core is denser than outer parts of the moon, although less dense than expected. This may be because the core still contains a large amount of ice or because the rocks have reacted with water to form low-density minerals.

Earth and other terrestrial planets are fully differentiated and have a dense iron core. Fortes' model, however, rules out a metallic core inside Titan and agrees with Cassini magnetometer data that suggests a relatively cool and wet rocky interior. The new model also highlights the difficulty in explaining the presence of important gases in Titan's atmosphere, such as methane and argon-40, since they do not appear to be able to escape from the core.

(SOURCE: NASA/Jet Propulsion Laboratory. "The Many Moods of Titan." *ScienceDaily*, 24 Feb. 2012.)