CONSOLIDATION 1
UNITS 1-3

READING SECTION
TEXT 1

DYNAMIC NATURE OF OUR PLANET

PRE READING

1. What are some examples of natural disasters, and what kind of damage can they cause to communities and the environment?
2. How do emergency responders typically assist people during and after a natural disaster, and what can individuals do to prepare for such events?
3. Can you explain the basic concept of disaster preparedness and why it's important for everyone, regardless of where they live?

Paragraph 1
An earthquake is the vibration of Earth produced by the rapid release of energy. Most often, earthquakes are caused by slippage along a fault in Earth's crust. The energy released radiates in all directions from it source, called the focus, in the form of waves. These waves are analogous to those produced when a stone is dropped into a calm pond. Just as the impact of the stone sets water waves in motion, an earthquake generates seismic waves that radiate throughout Earth. Even though the energy dissipates rapidly with increasing distance from the focus, sensitive instruments located around the world record the event. Over 30,000 earthquakes that are strong enough to be felt occur worldwide annually. Fortunately, most are minor tremors and do very little damage. Generally, only about 75 significant earthquakes take place each year, and many of these occur in remote regions. However, occasionally a large earthquake occurs near a large population centre.

Paragraph 2
The tremendous energy released by atomic explosions or by volcanic eruptions can produce an earthquake, but these events are relatively weak and infrequent. What mechanism produces a destructive earthquake? Ample evidence exists that Earth is not a static planet. We know that Earth's crust has been uplifted at times, because we have found numerous ancient wave-cut benches many meters above the level of the highest tides. Other regions exhibit evidence of extensive subsidence. In addition, we also have evidence that indicates horizontal movement. These movements are usually associated with large fractures in Earth's crust called faults. Typically, earthquakes occur along pre-existing faults that formed in the distant past along zones of weakness in Earth's crust. Some are very large and can generate major earthquakes. One example is the San Andreas Fault that separates two great sections of Earth's lithosphere: the North American plate and the Pacific plate. It trends in a north-westerly direction for nearly 1,300 kilometres through much of western California.

Paragraph 3
Other faults are small and produce only minor and infrequent earthquakes. However, the vast majority of faults are inactive and do not generate earthquakes at all. Nevertheless, even faults that have been inactive for years can rupture again if the stresses acting on the region increase sufficiently. In addition, most faults are not perfectly straight or continuous; instead, they consist of numerous branches and smaller fractures that display **kinks** and offsets. The San Andreas Fault is actually a system that consists of several large faults and innumerable small fractures. Most of the motion along faults can be satisfactorily explained by the plate tectonics theory, which states that large slabs of Earth's lithosphere are in continual

slow motion. These mobile plates interact with neighbouring plates, straining and deforming the rocks at their margins. In fact, it is along faults associated with plate boundaries that most earthquakes occur. Furthermore, earthquakes are repetitive: As soon as one is over, the continuous motion of the plates adds strain to the rocks until they fail again.

Paragraph 4

The actual mechanism of earthquake generation eluded geologists until H.F.Reid conducted a study following the great 1906 San Francisco earthquake. This enormous earthquake was accompanied by horizontal surface displacements of several meters along the northern portion of the San Andreas Fault. Field investigations determined that during this single earthquake, the Pacific plate lurched as much as 4.7 meters northward past the adjacent North American plate. The mechanism for earthquake formation that Reid deduced from this information is called elastic rebound. First there is an existing fault, or break in

the rock. Then tectonic forces ever so slowly deform the crustal rocks on both sides of the fault. Under these conditions, rocks bend and store elastic energy, much like a wooden stick does if bent. Eventually, the frictional resistance holding the rocks in place is overcome. As slippage occurs at the weakest point, the focus, displacement will exert stress farther along the fault, where additional slippage will occur until most of the built-up strain is released. This slippage allows the deformed rock to "snap back. “The vibrations known as an earthquake occur as the rock elastically returns to its original shape. The springing back of the rock was termed "elastic rebound" by Reid, because the rock behaves elastically, much like a stretched rubber band does when it is released.

WHILE READING

Choose the best answer according to the text.

1. What is the tone of the text?

a. Formal b. Informal c. Pessimistic d. Melancholic

2. Who is the intended audience for the text?

a. Scientists and researchers studying plate tectonics
b. General public interested in geology and natural disasters
c. Students studying earth sciences in a university setting
d. Engineers and architects involved in seismic design and construction

3. The word **kinks** in paragraph 3 is closest in meaning to _____.

a. twists b. cracks c. weaknesses d. rocks

4. How is the reading organized?

a. It presents the history and causes of earthquakes
b. It discusses different types of earthquakes and their impacts
c. It examines earthquake-prone regions and fault systems
d. It addresses the mechanism of earthquake generation and mitigation strategies

5. Which of the following is **true** according to paragraph 1?

a. Earthquakes are mainly caused by volcanic eruptions.
b. The energy released during an earthquake travels only in one direction.
c. Over 30,000 earthquakes occur worldwide annually, but most are minor tremors.
d. Significant earthquakes primarily occur in densely populated areas.

6. Which of the following is **not given** according to paragraph 1?
a. Earthquakes are caused by the slippage along a fault in Earth's crust.
b. The energy released during an earthquake radiates in all directions from the focus.
c. Seismic waves generated by an earthquake are similar to the waves produced by a stone dropped in water.
d. Most earthquakes occur near densely populated areas.

7. Which of the following is **false** according to paragraph 2?
a. Atomic explosions and volcanic eruptions cannot produce relatively weak and infrequent earthquakes.
b. Evidence exists for the uplift and subsidence of Earth's crust.
c. Horizontal movement and earthquakes are typically associated with faults in Earth's crust.
d. The San Andreas Fault separates two sections of Earth's lithosphere: the North American plate and the Pacific plate.

8. Which of the following is **false** according to paragraph 3?
a. The vast majority of faults are inactive and do not generate earthquakes.
b. Faults that have been inactive for years cannot rupture again.
c. Most faults consist of numerous branches and smaller fractures with kinks and offsets.
d. Earthquakes occur along faults associated with plate boundaries.

9. Which of the following is **false** according to paragraph 4?
a. The mechanism for earthquake formation deduced by H.F. Reid is called elastic rebound.
b. Tectonic forces slowly deform the crustal rocks on both sides of an existing fault.
c. The frictional resistance holding the rocks in place is never overcome during an earthquake.
d. Earthquakes occur as the deformed rock elastically returns to its original shape.

10. Which of the following is **true** according to paragraph 4?
a. H.F. Reid conducted a study on the San Francisco earthquake in 1906.
b. The Pacific plate moved southward past the North American plate during the 1906 earthquake.
c. The mechanism for earthquake formation is called tectonic rebound.
d. Earthquakes occur as rocks permanently deform and lose their original shape.

DISCUSSION

1. '*Earthquakes might seem a bit scary, but if we understand why they happen and what to do when they occur, we can stay safe*.' Do you agree or disagree?
2. How can communities better prepare for natural disasters, and what role do individuals play in disaster preparedness?
3. What are some of the environmental consequences of natural disasters, and how can society work to mitigate these effects?

TEXT 2

MILLENNIUM COMPUTER BUG: Y2K

PRE READING

Discuss the following questions:

1. How has the widespread use of computers changed the way people work and communicate in various industries and daily life?
2. What are some common challenges and risks associated with computer usage, such as data security and privacy concerns, and how can individuals protect themselves?
3. How has the evolution of computer technology over the years influenced the accessibility and affordability of computers for different socioeconomic groups?

Paragraph 1

The year was 1999. The night was December 31st, New Year's Eve. The world watched and waited. It was a night of celebration. But it was also a night of fear. People had grown to depend on computers. Computers powered our banks. They ran our companies. Would they all break at midnight? Some thought that they might. But why?

Paragraph 2

The Year 2000 problem, or Y2K, had to do with computer storage. Computers store data and files in memory. Computer memory is cheap these days. Some companies will give you cloud storage for free. But in the early days of computing, memory was very expensive. One kilobyte (about 1,000 characters of storage) might cost as much as $100 USD.

Paragraph 3

People had to think of ways to use less storage. One way they did this was by storing only the last two digits of the year. Instead of saving the date as 07/02/1979, they would save it as 07/02/79.

Paragraph 4

This seemed like a good idea at first. But as the years passed, the turn of the century neared. Would our computers know that it was the year 2000 instead of the year 1900? How could they? What would happen if they got the dates wrong? Would the computers break?

Paragraph 5

The Y2K problem worried many people. Some feared that banking systems wouldn't work. Payments might fail. Cash registers might break.

Paragraph 6

Another fear was that transportation systems would break. Taxi meters could stop working. Airline computers could fail. Traffic lights could shut down. The Y2K problem was very worrisome.

Paragraph 7

But people didn't just wait for their systems to fail. They worked hard to prevent the bugs. Governments passed laws. Businesses upgraded their systems. People rewrote software. Some think over $300 billion dollars were spent fixing the Y2K problem. But were people really prepared when it happened?

Paragraph 8

As clocks turned and calendars flipped to the year 2000, there were very few problems. Air planes did not fall from the sky. Power grids did not shut down. Bank accounts did not get wiped out. We had avoided the worst.

Paragraph 10

A few bugs and errors happened around the world. Some bus ticket machines in Australia stopped working. Some slot machines in Delaware broke. Certain cell phones in Japan deleted new text messages. But most computers kept working just fine. Will things work out the same way for the Year 2038 problem (Y2K38)? Only time will tell.

WHILE READING

Choose the best answer according to the text.

1. Which of the following is **true** about describing the Y2K problem?
a. Magnetic waves might erase all computer memory.
b. Computers would cost too much for most families.
c. A computer virus would spread and break all systems.
d. Computers might get the date wrong and malfunction.

2. Which of the following is **true** about why programmers shortened dates in computer storage?
a. They were in a big hurry.
b. They were trying to save money.
c. They were being lazy.
d. They were creating more work for themselves.

3. What is the main purpose of paragraph 6?
a. to describe fears related to transportation and the Y2K bug.
b. to inform readers of how computers help people.
c. to explain how a terrorist attack affected America on 9/11.
d. to persuade readers to back up their computer storage.

4. Which of the following statements is **not** a way that people addressed the Y2K problem according to the text?
a. Programmers rewrote software.
b. Companies upgraded their computer systems.
c. Individuals threw away outdated computers.
d. Governments created legislation.

5. How is paragraph 3 organized?
a. Problem and solution
b. Order of importance
c. Chronological order
d. Spatial order

6. Which of the following statements was **not given** in the text as a fear related to Y2K?
a. Traffic control devices would fail.
b. School bells would not ring on time.
c. Bank systems would malfunction.
d. Airline computers would stop working.

7. Which of the following is **true** about how the Y2K bug affected the world?
a. Many computers malfunctioned, and it was a catastrophe.
b. All computers stopped working and the damage was tremendous.
c. A small number of computers malfunctioned but it was no big deal.
d. Most computers stopped working and it cost a lot of money.

8. Which of the following statements is **true** according to the text?
a. It was a tragedy that people did not prepare more for Y2K.
b. Y2K was never a problem and people were worried for no reason.
c. Computers create more problems than they solve.
d. Since people prepared for Y2K, it wasn't much of a problem.

9. Which of the following statements was **not** an error caused by the Y2K bug?
a. Credit card processors around the world went down.
b. Bus ticket machines in Australia stopped working.
c. Cell phones in Japan deleted new messages.
d. Slot machines in Delaware malfunctioned.

10. What is the main purpose of the reading?
a. Technology is frustrating and not worth having.
b. Our dependence on technology can be scary at times.
c. Robots and AI will take over the world one day.
d. Y2K was the worst catastrophe in history.

DISCUSSION

1. How do you think the Y2K problem could have been prevented more effectively, looking back at the preparations made in 1999?
2. In your opinion, what lessons can we learn from the Y2K problem in terms of addressing potential technological issues in the future, such as the Year 2038 problem (Y2K38)?

VOCABULARY SECTION

I. Read the following sentences carefully and fill in the blanks with the correct words you choose from the box. Use each word only ONCE. DO NOT change the words in any way. There is <u>one extra word</u>.

outcome	variables	tend
incident	confirm	current

1. The research team will _____ the validity of their hypothesis through a series of experiments and data analysis.
2. Studies suggest that people _____ to have more positive attitudes towards individuals who share similar beliefs and values.
3. The _____ of the experiment was unexpected and has raised new questions for future research.
4. The researcher must carefully consider all _____-that may impact the findings of the study to ensure accuracy.
5. The _____ political system has led to significant changes in government policies.

II. Read the following sentences carefully and fill in the blanks with the correct words you choose from the box. Use each word only ONCE. DO NOT change the words in any way. There is <u>one extra word</u>.

imitate	affiliation	smashing	entirely
generic	flaw	diverse	tradition

1. It is a graduation _____ to move your hat's tassel and throw the cap in the air at the end of the ceremony.
2. The police officer stated that the major _____ in the robbers' plan was that they didn't have a lookout to alert them that the police were coming.
3. When a TV show has great success in public media, many other producers try to _____ it with a similar product to cash in.
4. The gang requires all members to tattoo their necks with slogans, which proclaims their _____ loudly and clearly.
5. The reckless driver ended up _____ into a tree, fortunately without injuring anyone else.
6. The _____ design of the new smartphone made it difficult to differentiate from its competitors in the market.
7. During my travel abroad, I encountered many _____ cultures and customs, broadening my worldview.

III. Read the following sentences carefully and fill in the blanks with the correct words you choose from the box. Use each word only ONCE. DO NOT change the words in any way. There is <u>one extra word</u>.

overseas	emotions	extroverted	survive
introverted	guilt	concrete	mass-produced

1. Even though he didn't mean to cause harm, his actions resulted in the death of innocent civilians and left him with a deep sense of _____.
2. Being _____, he never misses an opportunity to socialize with new people and expand his network.
3. As an _____ person, he prefers to spend his free time doing solitary activities such as reading or painting.
4. The _____ gadgets may be affordable, but they often lack the quality and uniqueness found in handmade products.
5. It's important to acknowledge and express our _____ instead of bottling them up, as it can lead to negative effects on mental health.
6. Despite facing many challenges, the small business was able to _____ through tough times.
7. Scientists hypothesize that time travel might be possible through black holes, but there's no _____ evidence to support this theory.

IV. Read the following sentences carefully and fill in the blanks with the correct words you choose from the box. Use each word only ONCE. DO NOT change the words in any way. There is <u>one extra word</u>.

durable	compassion	practice
point of views	define	multifunctional

1. Regular _____ is essential for mastering a musical instrument.
2. The _____ material used in constructing the building ensured that it would withstand natural disasters and stay intact for decades to come.
3. The _____ kitchen appliance not only saves space but also makes cooking more convenient by performing multiple tasks at once.
4. It's important to _____ key terms before beginning any research project to ensure clarity and consistency of language.
5. Considering different _____ before making a decision can help us reach a more comprehensive solution to a problem.