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Daffodil International University

Faculty of Science & Information Technology

Department of Computer Science and Engineering

Mid-Semester Examination, Fall-2024

Course Code: ENG 102 Course Title: Writing and Comprehension

Level: 1 Term: 2 Batch: 66

Exam Duration: 1.5 Hours **Marks: 25**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.		**Reading**	**1x 15= 15 Marks**	**CO's**
		Reading Passage 1: Read the following passage and answer the following questions		**CO 1**

Ants Could Teach Ants

The ants are tiny and usually nest between rocks in the south coast of England. Transformed into research subjects at the University of Bristol, they raced along a tabletop foraging for food -and then, remarkably, returned to guide others. Time and again, followers trailed behind leaders, darting this way and that along the route, presumably to memorize land- marks. Once a follower got its bearings, it tapped the leader with its antennae, prompting the lesson to literally proceed to the next step. The ants were only looking for food but the researchers said the careful way the leaders led followers -thereby turning them into leaders in their own right -marked the *Temnothorax albipennis* ant as the very first example of a non-human animal exhibiting teaching behavior.

"Tandem running is an example of teaching, to our knowledge the first in a non-human animal, that involves bidirectional feedback between teacher and pupil," remarks Nigel Franks, professor of animal behavior and ecology, whose paper on the ant educators was published last week in the journal *Nature*.

No sooner was the paper published, of course, than another educator questioned it. Marc Hauser, a psychologist and biologist and one of the scientists who came up with the definition of teaching, said it was unclear whether the ants had learned a new skill or merely acquired new information.

Later, Franks took a further study and found that there were even races between leaders. With the guidance of leaders, ants could find food faster. But the help comes at a cost for the leader, who normally would have reached the food about four times faster if not hampered by a follower. This means the hypothesis that the leaders deliberately slowed down in order to pass the skills on to the followers seems potentially valid. His ideas were advocated by the students who carried out the video project with him.

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Opposing views still arose, however. Hauser noted that mere communication of information is commonplace in the animal world. Consider a species, for example, that uses alarm calls to warn fellow members about the presence of a predator. Sounding the alarm can be costly, because the animal may draw the attention of the predator to itself. But it allows others to flee to safety. "Would you call this teaching?" wrote Hauser. "The caller incurs a cost. The naive animals gain a benefit and new knowledge that better enables them to learn about the predator's location than if the caller had not called. This happens throughout the animal kingdom, but we don't call it teaching, even though it is clearly transfer of information."

Tim Caro, a zoologist, presented two cases of animal communication. He found that cheetah mothers that take their cubs along on hunts gradually allow their cubs to do more of the hunting -going, for example, from killing a gazelle and allowing young cubs to eat to merely tripping the gazelle and letting the cubs finish it off. At one level, such behavior might be called teaching -except the mother was not really teaching the cubs to hunt but merely facilitating various stages of learning. In another instance, birds watching other birds using a stick to locate food such as insects and so on, are observed to do the same thing themselves while finding food later.

Psychologists study animal behavior in part to understand the evolutionary roots of human behavior, Hauser said. The challenge in understanding whether other animals truly teach one another, he added, is that human teaching involves a "theory of mind" -teachers are aware that students don't know something. He questioned whether Franks's leader ants really knew that the follower ants were ignorant. Could they simply have been following an instinctive rule to proceed when the followers tapped them on the legs or abdomen? And did leaders that led the way to food -only to find that it had been removed by the experimenter -incur the wrath of followers? That, Hauser said, would suggest that the follower ant actually knew the leader was more knowledgeable and not merely following an instinctive routine itself.

The controversy went on, and for a good reason. The occurrence of teaching in ants, if proven to be true, indicates that teaching can evolve in animals with tiny brains. It is probably the value of information in social animals that determines when teaching will evolve rather than the constraints of brain size.

Bennett Galef Jr., a psychologist who studies animal behavior and social learning at McMaster University in Canada, maintained that ants were unlikely to have a "theory of mind" -meaning that leader and followers may well have been following instinctive routines that were not based on an understanding of what was happening in another ant's brain. He warned that scientists may be barking up the wrong tree when they look not only for examples of human like behavior among other animals but human like thinking that underlies such behavior. Animals may behave in ways similar to humans without a similar cognitive system, he said, so the behavior is not necessarily a good guide into how humans came to think the way they do.

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A **(Questions 1-4) Choose FOUR letters, A-H for questions 1-4. Which FOUR of the following behaviors of animals are mentioned in the passage?**

A. touch each other with antenna
B. alert others when there is danger
C. escape from predators
D. protect the young
E. hunt food for the young
F. fight with each other
G. use tools like twigs
H. feed on a variety of foods

B **Do the following statements agree with the information given in Reading Passage 1? For the questions, 5 - 8 on your answer sheet, write**

TRUE. if the statement agrees with the information
FALSE. if the statement contradicts the information
NOT GIVEN If there is no information on this

5. Ants' tandem running involves only one-way communication.
6. Franks's theory got many supporters immediately after publicity.
7. Ants' teaching behavior is the same as that of humans.
8. Cheetah share hunting gains with younger ones

Reading Passage 2: Read the following passage and answer the following questions

Global Warming in New Zealand

For many environmentalists, the world seems to be getting warmer. As the nearest country of South Polar Region, New Zealand has maintained an upward trend in its average temperature in the past few years. However, the temperature in New Zealand will go up 4oC in the next century while the polar region will go up more than 6oC. The different pictures of temperature stem from its surrounding ocean which acts like the air conditioner. Thus New Zealand is comparatively fortunate.

Scientifically speaking, this temperature phenomenon in New Zealand originated from what researchers call "SAM" (Southern Annular Mode), which refers to the wind belt that circles the Southern Oceans including New Zealand and Antarctica. Yet recent work has revealed that changes in SAM in New Zealand have resulted in a weakening of moisture during the summer, and more rainfall in other seasons A bigger problem may turn out to be heavier droughts for agricultural activities because of more water loss from soil, resulting in poorer harvest before winter when the rainfall arrives too late to rescue.

Among all the calamities posed be drought, moisture deficit ranks the first. Moisture deficit is the gap between the water plants need during the growing season and the water the earth can offer. Measures of moisture deficit were at their highest since the 1970s in New Zealand. Meanwhile, ecological analyses clearly show moisture deficit is imposed at different growth stage of crops. If moisture deficit occurs around a crucial growth stage, it will cause about 22% reduction in grain yield as opposed to moisture deficit at vegetative phase.

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Global warming is not only affecting agriculture production. When scientists say the country's snow pack and glaciers are melting at an alarming rate due to global warming, the climate is putting another strain on the local places. For example, when the development of global warming is accompanied by the falling snow line, the local skiing industry comes into a crisis. The snow line may move up as the temperature goes up, and then the snow at the bottom will melt earlier. Fortunately, it is going to be favorable for the local skiing industry to tide over tough periods since the quantities of snowfall in some areas are more likely to increase.

What is the reaction of glacier region? The climate change can be reflected in the glacier region in southern New Zealand or land covered by ice and snow. The reaction of a glacier to a climatic change involves a complex chain of processes. Over time periods of years to several decades, cumulative changes in mass balance cause volume and thickness changes, which will affect the flow of ice via altered internal deformation and basal sliding. This dynamic reaction finally leads to glacier length changes, the advance or retreat of glacier tongues. Undoubtedly, glacier mass balance is a more direct signal of annual atmospheric conditions.

The latest research result of National Institute of Water and Atmospheric (NIWA) Research shows that glaciers line keeps moving up because of the impacts of global warming. Further losses of ice can be reflected in Mt. Cook Region. By 1996, a 14 km long sector of the glacier had melted down forming a melt lake (Hooker Lake) with a volume. Melting of the glacier front at a rate of 40 m/yr will cause the glacier to retreat at a rather uniform rate. Therefore, the lake will continue to grow until it reaches the glacier bed.

A direct result of the melting glaciers is the change of high tides the serves the main factor for sea level rise. The trend of sea level rise will bring a threat to the groundwater system for its hyper-saline groundwater and then pose a possibility to decrease the agricultural production. Many experts believe that the best way to counter this trend is to give a longer-term view of sea level change in New Zealand. Indeed, the coastal boundaries need to be upgraded and redefined.

There is no doubt that global warming has affected New Zealand in many aspects. The emphasis on the global warming should be based on the joints efforts of local people and experts who conquer the tough period. For instance, farmers are taking a long term, multi-generational approach to adjust the breeds and species according to the temperature. Agriculturists also find ways to tackle the problems that may bring to the soil. In broad terms, going forward, the systemic resilience that's been going on a long time in the ecosystem will continue.

How about animals' reaction? Experts have surprisingly realized that animals have unconventional adaptation to global warming. A study has looked at sea turtles on a few northern beaches in New Zealand and it is very interesting to find that sea turtles can become male or female according to the temperature. Further researches will try to find out how rising temperatures would affect the ratio of sex reversal in their growth. Clearly, the temperature of the nest plays a vital role in the sexes of the baby turtles.

Tackling the problems of global warming is never easy in New Zealand because records show the slow process of global warming may have a different impact on

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various regions. For New Zealand, the emission of carbon dioxide only accounts for 0.5% of the world's total, which has met the governmental standard.

However, New Zealand's effort counts only a tip of the iceberg. So far, global warming has been a world issue that still hangs in an ambiguous future.

C **Questions 9-11**
Choose the correct number I, II, III or IV.

9. What does "moisture deficit" mean to the grain and crops?

I. The growing conditions will be very tough for crops.
II. The growing season of some plants can hardly be determined.
III. There will be a huge gap between the water plants needed and the water the earth can offer.
IV. The soil of the grain and crops in New Zealand reached its lowest production since the 1970s.

10. What changes will happen to the skiing industry due to the global warming phenomenon?

I. The skiing station may lower the altitude of the skiing
II. Part of the skiing station needs to move to the north.
III. The snowfall may increase in part of the skiing station.
IV. The local skiing station may likely make a profit because of the snowfall increase.

11. Cumulative changes over a long period of time in mass balance will lead to

I. Alterations are the volume and thickness of glaciers.
II. Faster changes in internal deformation and basal sliding.
III. Larger length of glaciers.
IV. Retreat of glacier tongues as a result of the change in annual atmospheric conditions.

D **(Questions 12-15) Complete the summary below. Choose NO MORE THAN TWO WORDS from the passage for each answer.**

Research data shows that sea level has a closely relation with the change of climate. The major reason for the increase in sea level is connected with (12) ---------- The increase in sea level is also said to pose a threat to the (13) ------- water system, the destruction of which caused by the rise of sea level will lead to a high probability of reduction in (14) ----------. In the long run, New Zealand may have to improve the (15) ---------- if they want to diminish the effective change in sea levels.

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2		**Grammar**	**0.5x06 = 3 Marks**	**CO2**
	A	**Read the underlined sentences and identify if these sentences are Simple, Complex, Compound, or Complex-compound according to their structure:** (i). When the sun set behind the mountains, the sky turned a brilliant shade of orange. (ii). It was a breathtaking sight, and Maria felt a sense of peace wash over her. (iii). She had been hiking all day, and although she was exhausted, the view made it all worthwhile. As she reached the summit, she noticed a small cabin that she had not seen before. The cabin looked abandoned, but it was intriguing, so she decided to investigate. (iv). Inside, Maria found old photographs and dusty furniture. They were artifacts from another time, and she imagined who might have lived there. She wondered if the cabin held any secrets. (v) By the time of her departure, the stars had begun to appear, twinkling in the clear night sky. (vi). Maria walked back to her campsite, content with the day's discoveries and eager to share her adventure with her friends.		
3.		**Writing**	**1x 7 = 07 Marks**	**CO3**
	A	Suppose you are the Head of the Department of Computer Science Engineering, at Daffodil International University. You want to organize a Programming Contest at the university on November 01, 2024. Now write a memo to all the members of the Programming Contest Committee to inform them and to advise them to arrange a meeting next week to discuss all the issues. **Write at least 80-100 words.**		