Academic Reading 1 (AR1) Sample Final Test (1) Test Booklet

Instructions to Students

- 1. TURN OFF your cell phone.
- 2. Place your student ID, pencils, and eraser on the desk. Put everything else in your bag and put your bag on the floor.
- 3. Before the test begins, you will receive this test booklet and an answer sheet. The test booklet contains 9 pages plus this cover page.
- 4. Do NOT open the test booklet before you are told to do so by the examiner.
- 5. At the top of the answer sheet, write the information required about yourself and your Academic Reading class.
 - Day (Monday, Tuesday, Wednesday, Thursday, or Friday)
 - Class Period (1, 2, 3, 4, or 5)
 - Teacher's Name
 - Student ID
 - Student Name
- 6. Write all your answers on the answer sheet.
- 7. Dictionaries are not allowed.
- 8. The following behavior during the test is considered cheating and is subject to severe punishment.
 - the use of a camera or a cell phone
 - looking at notes
 - looking at another student's answer sheet
 - providing answers to another student
- 9. You will have 60 minutes to complete the test.
- 10. When the test is completed, wait guietly for the examiner to collect all of the answer sheets.
- 11. Take this test booklet home with you.

Important Note

The questions in this sample test are from AY2015 and earlier. Future tests will be based on the current list of Science News items listed on the AR1 web page. The questions here should therefore be seen as samples of the kinds of questions that may appear on the AR1 final test.

Part I (Goal 6): Science News

Instructions: Answer the following questions based on the information contained in the assigned science news articles.

- 1. Which of the following is true according to the scientific research on Dutch height?
 - a. Taller men and women have more children in the Netherlands.
 - b. Average-height women are favored in Holland when it comes to having kids.
 - c. Tall men have a sexual advantage in the USA as well as in the Netherlands.
 - d. Tall men are more likely to divorce and start a second family in the USA.
- 2. What was found in the oxytocin injection experiment?
 - a. Dogs are affected by oxytocin but wolves are not.
 - b. Female dogs are affected by oxytocin but male dogs are not.
 - c. Female dog owners are affected by oxytocin but male owners are not.
 - d. Wolves are affected by human gaze after the oxytocin injection.
- 3. Which of the following statements about the genetic modification of human embryos by a team of Chinese scientists is correct?
 - a. This experiment was praised by many scientists.
 - b. Many scientists believe that this should not be allowed.
 - c. The famous journal *Nature* accepted their paper.
 - d. The famous journal Science accepted their paper.
- 4. Which of the following statements about the research on rats and chocolate is correct?
 - a. Rats help their trapped mates because they want company.
 - b. This new study about rats was conducted by a neurobiologist in the U.S.
 - c. This new study about rats shows that the evolution of rats is like that of humans.
 - d. Rats help other rats out of their willingness to save others in distress.
- 5. What does "the robots with an evolutionary algorithm" mean?
 - a. robots that are programmed to move in specific patterns
 - b. robots that have sensors that determine specific problems
 - c. robots that will run repeated trial and error steps to find a new way to get around
 - d. robots that are built to injure other robots and take over the world
- 6. How do chimpanzees in Guinea, west Africa drink alcohol?
 - a. They take it from human settlements in the area.
 - b. They suck ethanol gasoline from storage containers.
 - c. They lick spongy leaves dipped in fermented palm sap.
 - d. They set fruit out in the sun and drink it after it is rotten.
- 7. Which of the following do astronomers believe to be true about the moons of Pluto?
 - a. Some of them rotate around each other, while going around Pluto.
 - b. Their names are Charon, Styx, Io, Europa, and Ganymede.
 - c. The largest moon, Charon, is actually larger than Pluto.
 - d. At least one rotates in a very unpredictable manner.
- 8. What kind of discovery was made about corals in the Red Sea?
 - a. Shallow water corals emit green light to attract fish.
 - b. Deep water corals emit different colors of fluorescent light.
 - c. Corals in the Red Sea have many-colored fish swimming through them.
 - d. Below about 50-60 meters, undersea corals are too dark to see.

Part II (Goal 2): Recognizing Common Linguistic Features

Instructions: Read texts [A] - [F] and answer the questions that follow each.

[A] Here we exploit the robustness of familiar face recognition to mine high-resolution portrait photographs for latent information. Specifically, we show that the faces of hidden <u>bystanders</u> can be identified via reflections in the eyes of photographic subjects.

[From Jenkins and Kerr 2013; in Rose 2015, p. 27]

- 9. Which of the following is closest to the meaning of <u>bystanders</u> in the text?
 - a. a non-participating observer

b. a model standing for a photo

c. a three-legged stand for a camera

d. a participant in a photo shoot

[B] Tesla coil circuits were used commercially in sparkgap radio transmitters for wireless telegraphy until the 1920s, and in medical equipment such as <u>electrotherapy</u> and violet ray devices. Today their main use is for entertainment and educational displays

[From Wikipedia contributors, "Tesla coil"]

- 10. Which of the following is closest to the meaning of <u>electrotherapy</u> in the text?
 - a. the use of electricity in medical treatments
 - b. a therapy that uses loud noises to shock the patient
 - c. any electrical medical device used for treatment
 - d. curing social problems by electing new leaders

[C] Scientists have long been fascinated by the sheer tallness of the Dutch, who gained over eight inches in height over the past century and a half. In their search for the secret of that impressive stature, they've floated many theories.

[From Blakemore 2015]

- 11. Which of the following is closest to the meaning of <u>stature</u> in the text?
 - a. a person's weight

b. a person's height

c. a person's nationality

d. a person's character

[D] (1) The authors compared daily apple eaters (those who consumed at least 1 small apple per day or 149 grams of raw apple) with non-apple eaters. (2) Of the 8,399 survey participants who completed a dietary recall questionnaire, 753 (9 percent) were apple eaters and 7,646 (91 percent) were non-apple eaters. (3) Apple eaters had higher educational attainment, were more likely to be from a racial or ethnic minority, and were less likely to smoke. (4) The authors measured "keeping the doctor away" as no more than one self-reported visit to a physician during the past year.

[From The JAMA Network Journals 2015]

- 12. Which sentence in the text is the topic sentence of the paragraph?
 - a. sentence (1)
- b. sentence (2)
- c. sentence (3)
- d. sentence (4)

- 13. What is the topic of the paragraph?
 - a. definition of "keeping the doctor away"
 - b. people who completed a dietary recall questionnaire
 - c. authors who studied about apple eaters vs. non-apple eaters
 - d. differences between people who eat apples daily and those who don't

[E] You may have noticed a common theme in both the software and the hardware descriptions: delving into the depths of hardware or software reveals more information or, conversely, lower-level details are hidden to offer a simpler model at higher levels. The use of such layers, or abstractions, is a principal technique for designing very sophisticated computer systems. One of the most important abstractions is the interface between the hardware and the lowest-level software. Because of its importance, it is given a special name: the instruction set architecture, or simply architecture, of a machine. The instruction set architecture includes anything programmers need to know to make a binary machine language program work correctly, including instructions, I/O devices, and so on. Typically the operating system will encapsulate the details of doing I/O, allocating memory, and other low-level system functions, so that application programmers do not need to worry about such details. The combination of the basic instruction set and the operating system interface provided for application programmers is called the application binary interface (ABI).

[From Patterson and Hennesssy 2005]

- 14. Which of the following technical terms is defined in the text?
 - a. application binary interface

b. encapsulation

c. binary machine language

d. lower-level details

- 15. What is the instruction set architecture?
 - a. a simpler model at higher levels
 - b. a principal technique for designing sophisticated computer systems
 - c. the interface between the hardware and the lowest-level software
 - d. the lowest-level software
- 16. Which of the following best describes the topic of the paragraph?
 - a. abstractions
- b. hardware
- c. software
- d. programmers
- **[F]** Computer engineers design the computing devices that we use every day. There are many types of computer engineers, who work on a variety of different types of devices and systems. Some of the more prominent engineering jobs include hardware engineer, who designs hardware components, such as microprocessors; software engineer, who creates new programming languages and operating systems; systems engineer, who takes the components designed by other engineers and makes <u>them</u> all work together; and network engineer, whose job is to understand the networking requirements of an organization and then design a communication system to meet <u>those</u> needs, using the networking hardware and software available.

[From Bourgeois 2014; in Rose 2015, p.56]

- 17. What does them refer to?
 - a. the computing devices that we use every day
 - b. hardware components, new programming languages and operating systems
 - c. the components designed by other engineers
 - d. other engineers
- 18. What does those needs refer to?
 - a. a variety of different types of devices and systems
 - b. the more prominent engineering jobs
 - c. the networking hardware and software available
 - d. the networking requirements

Part III (Goal 5): Managing Academic References

Instructions: Read texts [G] - [H] and answer the questions that follow each.

[G] (1) The experiment that is explained in Velasco, Jones, King, and Spence (2) looks at how environment influences people's perception of what they drink. The experimenters had people sit in different kinds of rooms (3) with different decoration (for example, grassy or wooden). They observed (4) that people's perception of the taste of the whiskey they drank changed depending on the atmosphere. The authors conclude that people experience drinking alcohol in a multisensory way and that future design should take this into account.

[Adapted from: Rose 2015, p. 63]

- 19. The text is a summary of a research article. Which position in the text is the most appropriate place for a citation to the article?
 - a. position (1)
- b. position (2)
- c. position (3)
- d. position (4)
- **[H]** L.C. Sousa, H. Sousa, C.F. Castro, C.C. António, R. Sousa, (2014) A new lightweight masonry block: Thermal and mechanical performance.
- 20. This text contains the reference information for a journal research article. What necessary piece of information is missing?
 - a. author(s)
- b. title
- c. where published
- d. year

Part IV (Goal 3): Comprehending Texts

Instructions: Read texts [I] and [J] and answer the questions that follow each.

- **[I-1]** (1) No system can run without an input of energy, and living systems are no exception. For all major ecosystems, both terrestrial and aquatic, the initial source of energy is *sunlight* absorbed by green plants through the process of photosynthesis. (The only exceptions are ecosystems near the ocean floor or in dark caves, where the procedures are bacteria that derive energy from the oxidation of hydrogen sulfide in those locations. These bacteria use that energy to make organic compounds, in a manner similar to that of higher plants. The process is called *chemosynthesis*, because it runs on chemical energy rather than light.)
- **[I-2]** Using sunlight as the basic energy source is fundamental to sustainability for two reasons: it is both *nonpolluting* and *nondepletable*.
- **[I-3]** *Nonpolluting*. Light from the Sun is a form of pure energy; it contains no substance that can pollute the environment. All the matter and pollution involved in the production of light energy are conveniently left behind on the Sun some 93 million miles (150 million kilometers) away in space.
- **[I-4]** *Nondepletable*. The Sun's energy output is constant. How much or how little of this energy is used on Earth will not influence, much less deplete, the Sun's output. For all practical purposes, the sun is an everlasting source of energy. True, astronomers tell us that the Sun will burn out in another 3-5 billion years, but we need to put this figure in perspective. One thousand is only (1) of a billion. Thus, even the passing of millennia is hardly noticeable on this time scale.
- **[I-5]** Hence, we uncover the (second) basic principle of ecosystem sustainability: For sustainability, ecosystems use sunlight as their source of energy.

[From Upton 2004, Appendix 1, p.70]

- 21. What is the topic of this text?
 - a. input of energy

- b. major ecosystems
- c. bacteria and sustainability
- d. sunlight in ecosystem
- 22. In which paragraph does the main idea of the text appear?
 - a. paragraph [I-1]
- b. paragraph [I-2]
- c. paragraph [I-3]
- d. paragraph [I-4]
- 23. Which of the following is the best paraphrase of sentence (1)?
 - a. All systems, including living systems, require energy as an input in order to continue.
 - b. Living systems are the only kinds of systems that need an input of energy.
 - c. Except systems containing life, all systems need a source of energy to survive.
 - d. Energy inputs are required by systems so that the life in them can live exceptionally.
- 24. How are ecosystems classified in text [I]?
 - a. the ones that use an input of energy and those that do not
 - b. the ones that are nonpolluting and those that are nondepletable
 - c. there is no clear classification since all ecosystems require an input of energy.
 - d. the ones that utilize sunlight as their energy source and those that utilize bacteria that derive their energy source
- 25. What does the text imply about *chemosynthesis*?
 - a. Its source energy is less nonpolluting.
 - b. Its source energy is less nondepletetable.
 - c. It contributes less to ecosystem sustainability.
 - d. All of the above
- [J] The nature of causality has long been a hotly debated topic in philosophy. However, one aspect of causal relations seems undisputed: They are asymmetric. Causes temporally precede and generate effects in the world. For example, smoking causes lung cancer but lung cancer does not cause smoking.

There has been sharp disagreement among psychologists as to whether this asymmetry is mirrored in human cognitive representations. Some researchers in the area of learning have claimed that causal asymmetry is not a feature that is represented when people learn about causal relations. According to this *associative* view, learning leads to knowledge about the associative strength between cues and outcomes. Although associative relations are also asymmetric, being directed from cues to outcomes, this asymmetry is dependent on the temporal assignment of learning events to the roles of cues and outcomes, and not on causal asymmetry. Causes and effects can arbitrarily function as cues or outcomes, depending on the temporal order of events in a learning task. By contrast, an alternative account, the *causal-model theory*, has postulated that learners explicitly represent asymmetric causal relations and use this knowledge in learning.

[From Fenker, Waldmann, and Holyoak 2013]

26. What is the topic of this text?

a. causal asymmetry

b. nature of causalityd. semantic memory

c. associative learning

27. What aspect of causal relations seems to be undisputed?

- a. Causal relations are always asymmetric.
- b. Causes are temporally preceded by effects.
- c. The nature of causality is hotly debated by philosophers.
- d. Smoking causes lung cancer but lung cancer does not cause smoking.

- 28. Which of the following sentences is true according to the associative view?
 - a. Psychologists disagree with causal asymmetry.
 - b. Causal asymmetry is represented in human mind.
 - c. Cues and outcomes always correspond to causes and events.
 - d. Causal asymmetry is dependent on the temporal assignment of learning of events.

Part V (Goal 4): Using Higher-level Cognitive Skills

Instructions: Read texts [K] and [L] and answer the questions that follow each.

[K] A research team from Uppsala University in Sweden has found that women who drink more than three glasses of milk per day were more likely to break their bones than women who drank less.

This finding was part of a study conducted on more than 100,000 people in Sweden, based on how much dairy they habitually consumed. The researchers monitored the diets of 61,400 women between 1987 and 1990 and 45,300 men through 1997 by asking them to fill out questionnaires on how often they ate common dairy products such as milk, cheese, and yoghurt. The health of the female participants was monitored for 20 years after the questionnaires, and for 11 years afterwards for the males.

Publishing their results in the *BMJ*, the team says that in women, high milk intake led to a greater risk of bone fracture, and in both men and women, it was associated with a higher mortality rate.

"Women who drank three or more glasses a day had twice the chance of dying at the end of the study than those who drank less than one glass a day," lead researcher Karl Michaelsson, a professor in medical epidemiology at Uppsala University, told BBC News. "And those who had a high milk intake also had a 50 percent higher risk of hip fracture."

Interestingly, unlike milk, when the dairy product was fermented, like in yoghurt, the results were reversed. The participants who consumed more yoghurt showed a decreased risk of experiencing bone fractures. Michaelsson told BBC News that the difference could be down to the sugars that are found in milk – lactose and galactose. (1)Both have been shown to accelerate ageing processes such as inflammation and oxidative stress in previous research using animals.

While the study involved a good amount of participants and was conducted over a relatively long period of time, the researchers are careful to point out that they're not ready to draw causal conclusions just yet.

[From BEC Crew 2014]

- 29. Choose the correct statement based on the information given in the text.
 - a. Fermentation forms sugars.
- b. All dairy products are fermented.
- c. Fermentation breaks down sugars.
- d. No dairy products are fermented.
- 30. Choose the correct statement based on the information given in the text.
 - a. Ageing processes have nothing to do with sugars.
 - b. Sugars slow down ageing processes.
 - c. Inflammation and oxidative stress have nothing to do with ageing process.
 - d. Sugars speeds up ageing processes.
- 31. Which of the following is the most likely criticism of the conclusions of the study based on the information given in the text?
 - a. The higher mortality rates for people who drink a lot of milk might be because Swedish people like milk so much.
 - b. The different bone fracture results for men and women might be caused by the different monitoring time periods for each group.
 - c. The researchers did not account for the cold weather and the long winters in Sweden.
 - d. The results are not reliable because the study was not done by a government agency.
- 32. Which of the following is the best paraphrase of sentence (1)?
 - a. Research has shown that animals start aging after they start drinking milk regularly.
 - b. Inflammation and oxidative stress cause faster research on aging in milk-drinking animals.
 - c. Animal studies show that some sugars in milk cause aging processes to speed up.
 - d. Milk and yoghurt cause animals to age more quickly as a result of research processes.
- 33. Which of the following is the best next step for this research project, based on the information given in the text?
 - a. repeat this study with a larger member of participants
 - b. write a paper about this research and publish it
 - c. gather more evidence about cause-and-effect relations
 - d. repeat this study for a longer period of time

[L] The idea of number and the process of counting goes back far beyond when history began to be recorded. There is some archeological evidence that suggests that humans were counting as far back as 50,000 years ago. However, we do not really know how this process started or developed over time. The best we can do is to make a good guess as to how things progressed. It is probably not hard to believe that even the earliest humans had some sense of *more* and *less*. Even some small animals have been shown to have such a sense. For example, one naturalist tells of how he would secretly remove one egg each day from a plover's nest. The mother was diligent in laying an extra egg every day to make up for the missing egg. Some research has shown that hens can be trained to distinguish between even and odd numbers of pieces of food. With these sorts of findings in mind, it is not hard to conceive that early humans had (at least) a similar sense of more and less. However, our conjectures about how and when these ideas emerged among humans are simply that; educated guesses based on our own assumptions of what might or could have been.

As societies and humankind evolved, simply having a sense of more or less, even or odd, etc., would prove to be insufficient to meet the needs of everyday living. As tribes and groups formed, it became important to be able to know how many members were in the group, and perhaps how many were in the enemy's camp. Certainly it was important for them to know if the flock of sheep or other possessed animals were increasing or decreasing in size. "Just how many of them do we have, anyway?" is a question that we do not have a hard time imagining them asking themselves (or each other).

In order to count items such as animals, it is often conjectured that one of the earliest methods of doing so would be with "tally sticks." These are objects used to track the numbers of items to be counted. With this method, each "stick" (or pebble, or whatever counting device being used) represents one animal or object. This method uses the idea of **one-to-one correspondence**. In a one to one correspondence, items that are being counted are uniquely linked with some counting tool.

Of course, in our modern system, we have replaced the sticks with more abstract objects. In particular, the top stick is replaced with our symbol "1," the second stick gets replaced by a "2" and the third stick is represented by the symbol "3," but we are getting ahead of ourselves here. These modern symbols took many centuries to emerge.

[From Lippman 2013, p. 333-334]

- 34. According to the text, what can we conclude about the origin of numbers?
 - a. Numbers began with animals such as birds.
 - b. Humans were able to count from the very beginning.
 - c. We can't conclude anything for sure: We can only guess.
 - d. Counting began with early methods like tally sticks.
- 35. Which of the following best describes the topic of this text?
 - a. the process of counting

- b. early human counting systems
- c. ways of numbering animals
- d. correspondence of ideas and numbers

- 36. Which of the following research questions is most directly motivated by the text?
 - a. What kind of objects would early humans have needed to count?
 - b. How is 'more' and 'less' expressed in different languages?
 - c. Where were early humans living 50,000 years ago?
 - d. What is the best way to count moving animals?
- 37. Which of the following best expresses a <u>one-to-one correspondence?</u>
 - a. the number of people riding a train and the engineer driving the train
 - b. the students sitting in a classroom and the seats they are sitting in
 - c. the total number of animals or objects that someone is trying to count
 - d. the number of tally sticks plus the number of pebbles in one's pouch
- 38. What does the author mean by writing, "we are getting ahead of ourselves here"?
 - a. There are some other topics about numbers and counting that need to be explained first.
 - b. In the modern era, we stopped using tally sticks and started counting instead.
 - c. The assignment of numbers to the sticks did not happen quickly.
 - d. Counting is an abstract concept, so early humans did not do it immediately.

End of Final Test

List of sources

- BEC Crew (2014) "Study suggests milk doesn't strengthen your bones it ages you instead", Science Alert, 30 Oct 2014, http://www.sciencealert.com/study-suggests-milk-doesnt-strengthen-your-bones-it-ages-you-instead (accessed 19 June 2015).
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Day	Class Period	Teacher's Name				
Student ID		Student Name				

Academic Reading 1 (AR1) Sample Final Test (1) Answer Sheet

Instructions: Fill in the circle corresponding to your answer for each item below. Be sure to fill in the circle completely. Fill in only one circle for each item.

	_	-	-						
Ex.	a		©	d	19	a	b	©	d
1	a	(b)	©	d	20	a	(b)	©	d
2	a	(b)	©	d	21	a	(b)	©	d
3	a	(b)	©	d	22	a	(b)	©	d
4	a	(b)	©	d	23	a	(b)	©	d
5	a	(b)	©	d	24	a	(b)	©	d
6	a	(b)	©	d	25	a	(b)	©	d
7	a	(b)	©	d	26	a	(b)	©	d
8	a	(b)	©	d	27	a	(b)	©	d
9	a	(b)	©	d	28	a	(b)	©	d
10	a	(b)	©	d	29	a	(b)	©	d
11	a	(b)	©	d	30	a	(b)	©	d
12	a	(b)	©	d	31	a	(b)	©	d
13	a	(b)	©	d	32	a	(b)	©	d
14	a	6	©	d	33	a	b	©	d
15	a	(b)	©	d	34	a	(b)	©	d
16	a	(b)	©	d	35	a	(b)	©	d
17	a	b	©	d	36	a	b	©	d
18	a	b	©	d					

Day	Class Period	Teacher's Name				
Student ID		Student Name				

Academic Reading 1 (AR1) Sample Final Test (1) Answer Sheet

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Ex.	a		©	d		19	a		©	d
1	a		©	d		20	a	b		d
2	a		©	d		21	a	b	©	
3	a		©	d		22	a		©	d
4	a	Ь	©			23		b	©	d
5	a	Ь		d		24	a	b	©	
6	a	Ь		d		25	a	b	©	
7	a	Ь	©			26		b	©	d
8	a		©	d		27		b	©	d
9		Ь	©	d		28	a	b	©	
10		Ь	©	d		29	a	b		d
11	a		©	(d)		30	a	b	©	
12		Ь	©	(d)		31	a		©	d
13	a	Ь	©			32	a	b		d
14		Ь	©	(d)		33	a	b		d
15	a	Ь		(d)		34	a	b		d
16		Ь	©	(d)		35	a		©	d
17	a	Ь		(d)		36		b	©	d
18	a	Ь	©			37	a		©	d
						38	a	6	•	(d)