Academic Reading 2 (AR2) Sample Final Test 3 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 quietly 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 AY2018 and earlier. Future tests will be based on the current list of Science News items listed on the AR2 web page. The questions here should therefore be seen as samples of the kinds of questions that may appear on the AR2 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. What did the octopuses do after they received the drug "ecstasy"?
 - a. They became aggressive toward a nearby octopus.
 - b. They played with a nearby action figure.
 - c. They became friendly to a nearby octopus.
 - d. They stayed away from other octopuses and toys.
- 2. Which of the following was found to be the most common cause of fatalities while taking selfies?a. lightning strikeb. vehicle accidentc. fallingd. drowning
- 3. The number of participants in the study that demonstrated the relationship between short fasts and type 2 diabetes was:
 - a. 1 subject b. 3 subjects c. 5 subjects d. 10 subjects
- 4. Triangular-shaped objects within ancient rocks that previous scientists originally believed to be the oldest evidence of life turned out to be:
 - a. geometric structures b. linguistic structures
 - c. biological structures d. mineral structures
- 5. Which of the following parts of birds are now known as having an evolutionary link with dinosaurs?
 - a. egg color only b. feathers, wishbones, and egg color
 - c. feathers and wishbones only d. wishbones and eggs only
- 6. According to the latest study, which of the following is more effective for solving children's sleep problem?
 - a. finding the precise mechanism that links digital screens to sleep
 - b. managing children's bedtime routines and regular patterns of sleep
 - c. limiting children's digital activities
 - d. studying adults' sleep problems
- 7. What is unusual about the ion drive airplane invented by MIT engineers?
 - a. It has no moving parts. b. It has no propulsion system.
 - c. It has no wings. d. It has no tail.
- 8. Which of the following is true according to new research about the Greenland ice sheet?
 - a. It is melting faster now than at any time in the last 350 years.
 - b. It has taken 350 years to build up its current size after the last melt.
 - c. It has grown smaller at a rate of about 35% per century since 1650.
 - d. It is now larger than it was before the start of the pre-industrial era.

Part II (Goal 2): Recognizing Common Linguistic Features

Instructions: Read texts [A] – [E] and answer the questions that follow each.

[A] <u>Since</u> the ability to detect a trustworthy person is necessary for maintaining adults' social system, it is natural to assume that this ability requires the higher-level processing acquired through rich social experiences. <u>A</u> our results suggest that young infants can obtain this ability through a slight number of social experiences after birth.

[adapted from Sakuta et al 2018]

9. What type of conne	ector is Since?		
a. attribution	b. explanation	c. example	d. violated expectation
10. Which logical con	nnector best fits in blan	k A?	
a. Furthermore.	b. Hence.	c. However.	d. In fact.

[B] Research indicating that between 50% to 90% of school-age children might not be getting enough sleep has prompted calls that technology use may be to blame. <u>However</u>, the new research findings from the Oxford Internet Institute at the University of Oxford, <u>has shown</u> that screen time has very little practical effect on children's sleep.

[adapted from University of Oxford 2018]

- 11. The logical connector <u>However</u> is of the type *violated expectation*. Which of the following best expresses the expectation that is violated?
 - a. Most children get enough sleep every night.
 - b. Children blame their sleep problems on technology.
 - c. Children's use of screen devices affects their sleep.
 - d. Children can sleep well after using computers.
- 12. Which of the following in the text is the same type of logical connector as that of <u>has shown</u>?

a. indicating b. between c. getting d. has prompted

[C] Our current study suggests that even young infants can make impression judgments, such as trustworthiness, based on face appearance, in an adult-like manner. A, it can be thought that impression judgment does not require many social experiences as infants under 1 year of age have not experienced higher-level social interaction yet.

[adapted from Sakuta et al 2018]

- 13. Which logical connector best fits in blank A?
 - a. Nevertheless, b. Therefore, c. In general, d. For example,

[D] <u>In Phase 1</u>, participants completed a set of questionnaires, which we modified to assess perceptions of Facebook support. We also <u>assessed</u> participants' motivation for using Facebook. <u>In Phase 2</u>, participants were text-messaged 5 times per day between 10am and midnight over 14-days. Text-messages occurred at <u>random</u> times within 168-minute windows per day. Each text-message contained a link to an online survey, which asked participants to <u>answer</u> five questions [about their feelings and Facebook usage] using a slider scale. Participants returned to the laboratory <u>following</u>

<u>Phase 2</u> to <u>complete</u> another set of questionnaires. Participants' number of Facebook friends was also recorded during this session from participants' Facebook accounts.

[adapted from Kross et al 2013]

- 14. What type of logical macro-organization do the <u>single-underlined</u> connectors show?a. temporal sequence b. contrast c. elaboration d. cause
- 15. Which of the following replacements of the <u>double-underlined</u> parts would make this text more subjective?
 - a. $\underline{assessed} \rightarrow measured$
 - b. <u>random</u> \rightarrow sloppy
 - c. <u>answer</u> \rightarrow respond to
 - d. $\underline{\text{complete}} \rightarrow \text{finish}$

Text [E] consists of the following paragraphs, [1] – [2]

[1] The negative health effects of sedentary behaviour are a hot topic gaining scientific and popular attention. News outlets have emphasized that sitting is killing us. Given the tsunami-like obesity epidemic that has risen over North America over the past few decades, critical investigations of the degree to which sedentary behaviour contributes to overweight and obesity is highly warranted.

[2] Every time I hear someone talk about how the amount of time we spend sitting these days kills us, I return to the same questions: If I was born 50 or 100 years earlier, would I be less sedentary than I am now? The figure below depicts my average 16-hour day (waking hours only). Exemplary of a big question in the sedentary behavior research domain, I am what you would call an "active couch potato" – I spend 6-7 hours a week engaged in moderate-to-vigorous exercise, \boxed{A} I still spend 50% of my waking hours sitting in front the computer. What does this mean to my health?

[adapted from Kobayashi 2015 (ARiSE2, p. 40)]

16. Which logical	connector best fits in b	olank A?	
a. once	b. yet	c. unless	d. like

- 17. Which of the following is the best description about how the text is written?
 - a. Paragraph [1] is more objective than paragraph [2].
 - b. Paragraph [2] is more objective than paragraph [1].
 - c. The entire text is written with an objective register.
 - d. The text is neither objective nor subjective.

18. Which of the following is an expression with a subjective tone?

- a. popular attention
- b. moderate-to-vigorous
- c. active couch potato
- d. there is no particular expression to mark a subjective tone

Part III (Goal 3): Comprehending Texts

Instructions: Answer the following questions about SQ3R

- 19. In which step of the SQ3R method should you "write your answers to your three questions from the Question step"?
 - a. Read b. Recite c. Survey d. Review

20. During Review, you should summarize the whole text. During which other step might you also do some (small) summarization?

a. Survey b. Recite c. Question d. Read

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

[F] It was revealed that 6- to 8-month-old infants differentiate faces based on the impression of trustworthiness and preferred a trustworthy face. This preference was shown when both faces had high dominance. A face with high dominance is related to physical strength and maturity whereas a face with low dominance is related to weakness and having a baby-face. It is possible that a person with high trustworthiness and high dominance is preferred by infants because such a person might be a more likely protector. From an evolutionary perspective, it is highly plausible that infants would have sensitivity to a trait that would benefit them from early in their development. For example, "warmth" or "trustworthiness" would be connected to protective or nursing behavior. It would be adaptive for infants to prefer a dominant (i.e., physically strong) and trustworthy person rather than a strong and untrustworthy person because the former is more likely to protect or nurse the infant. On the other hand, a nondominant (i.e., weak) person, whether trustworthy or untrustworthy, is unlikely to protect or nurse them. Therefore, comparing these two faces should not induce the infants' preference. It would make sense for babies to detect and prefer such traits to help them survive.

Our results are in line with previous research. It is quite surprising because even East Asian infants, who should have few chances to see Caucasian people, can perceive trustworthiness from Caucasian-looking faces. Thus, such sensitivity to trustworthiness would be culture independent. As described before, some researchers have reported the universality of trait-inference-from-faces. However, there still have been few studies that examined the development of face-to-trait inferences and many issues remain to be addressed.

[adapted from Sakuta et al 2018]

- 21. Which of the following best summarizes this academic text as a whole?
 - a. Previous research suggested that infants can distinguish Caucasian-looking faces based on trustworthiness, replicated by the current study.
 - b. Infants can infer trustworthiness only from dominant-looking faces because strong people are advantageous from the perspective of natural selection.
 - c. Infants have the ability to identify trustworthiness from dominant-looking faces, which seems to be culture independent.
 - d. The current study strongly suggests that the ability to differentiate trustworthy and nontrustworthy faces does not require much experience.

22. What is the property which previous researchers have reported regarding trait-inference-fromfaces?

a. trustworthiness b. experience c. dominance d. universality

23. What type of text is this text most likely a sample of?

a. Wikipedia article	b. textbook chapter
c. science news article	d. research article

[G] A team led by researchers from Trinity College Dublin combined brain monitoring technology with machine learning to help identify key moments of understanding when listening to narrative speech.

Electroencephalography (EEG) monitors brain activity through wire electrodes placed along the scalp that detect electrical signals as the brain responds to stimuli such as sounds, sights and smells. It has been used to study the brain's response to incongruous words in a sentence, but not for studying its response to natural speech.

The researchers used a computer model to evaluate the significance of words in audiobooks based on how each word related to previous ones in a sentence or paragraph. Participants then listened to the audiobooks while their brain activity was monitored.

Words carrying the most meaning should evoke the strongest EEG response, and indeed large spikes occurred within a few hundred milliseconds of words that the model predicted would trigger understanding. <u>This</u> suggests that our brains almost instantaneously calculate each word's semantic similarity to previous words.

[adapted from NatureIndex 2018]

24. Which statement is true about Electroencephalography (EEG) according to the text?

a. It monitors brain activities.

b. It has not been used for the study of natural speech.

c. It detects brain responses to sounds, sights and smells.

d. All of above.

25. What does <u>This</u> refer to?

- a. Large spikes occurred shortly after reading words.
- b. a word carrying meaning
- c. a strong EEG response
- d. Words carrying much meaning triggered strong spikes.
- 26. What type of text is this text most likely a sample of?
 - a. research article b. Wikipedia article
 - c. science news article d. textbook chapter

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

Instructions: Read text [H] and the notes based on it and answer the questions that follow them.

[H] Knowing that energy can be converted from one form to another has led numerous would-be inventors over the years to try to build machines or devices that would produce more energy than they consumed. A common idea that occurs to many students is to use the output from a generator to drive a motor that, in turn, drives the generator to keep the cycle going and yields additional power in the bargain.

Unfortunately, all such devices have one feature in common: They don't work. When all the inputs and outputs of energy are carefully measured, they are found to be equal. There is no net gain or loss in total energy. This observation is now accepted as a fundamental natural law, the law of conservation of energy, also called the first law of thermodynamics: Energy is neither created nor destroyed, but may be converted from one form to another. The law is also commonly stated as "You can't get something for nothing."

Fanciful "energy generators" fail for two reasons: First, in every energy conversion, a portion of the energy is converted to heat energy (thermal infrared). Second, heat always flows toward cooler surroundings. There is no way of trapping and recycling heart energy, since it can flow only "downhill" toward a cooler place. Consequently, in the absence of energy input, any and every system will sooner or later come to a stop as its energy is converted to heat and lost. This is now accepted as another natural law, the second law of thermodynamics. Basically, the second law says that, in any energy conversion, you will end up with less usable energy than you started with. So, not only can you not get something for nothing (the first law), you can't even break even.

[adapted from Nebel and Wright 1998]

Energy conversion let	would-be inventors expect machines/devices to produce more energy than consumed.
common idea	The cycle, (A generator)→(output)→(drive a motor)→(drive the generator), to yield more power
Fact	The machines/devices don't work: inputs \square outputs \rightarrow
С	Energy is (neither created nor destroyed), but (converted from one form to another).
2 reasons	1. Energy converted to E energy
	2. Heat flows only toward F places
D	Usable energy < started with
Conclusion	Not get something for nothing, according to \Box .
	Can't even break even, according to D.
This text explains the p	roblems with machines that produce more energy

27. What is the method using the divided page for notes called?

- a. Skimming and scanning method b. SQ3R method
- c. Cornell method d. Diagram method

28. Which of the following best fits in blank A?

- a. +/- b. > c. < d. =
- 29. Which of the following best fits in blank B?
 - a. one feature in common b. a fundamental natural law
 - c. energy laws d. the law of conservation of energy
- 30. Choose the best combination for blanks C and D, respectively.
 - a. the first law of thermodynamics; the second law of thermodynamics
 - b. laws of thermodynamics; the first law of thermodynamics
 - c. the second law of thermodynamics; the first law of thermodynamics
 - d. a fundamental natural law; another natural law
- 31. Choose the best combination for blanks E and F, respectively
 - a. recycling; additional

b. additional; recycling

c. cool; hotter

d. heat; cooler

Instructions: Read text [I] - which is a Wikipedia article - and answer the questions that follow it.

[I] An algorithm is a step-by-step list of directions that need to be followed to solve a problem. The $_{(I)}$ instructions should be simple enough such that each $_{(II)}$ step can be done without thinking about it. Algorithms are often used to describe how a computer might solve a problem. But there are algorithms in the real world too. A $_{(III)}$ recipe can be considered a type of algorithm. It tells what ingredients are needed to make the dish and what steps to follow. If the recipe tells exactly what to do without too much confusion, then it is an algorithm.

There is usually more than one way to solve a problem. There may be many different recipes to make a certain dish which looks different but ends up tasting the same when all is said and done. The same is true for algorithms. However, some of these ways will be better than others. If a recipe needs lots of complicated ingredients that you do not have, it is not as good as a simple recipe. When we look at algorithms as a $_{(IV)}$ way of solving problems, often we want to know how long it would take a computer to solve the problem using a particular algorithm. When we write algorithms, we like our algorithm to take the least amount of time so that we can solve our $_{(V)}$ problem as quickly as possible.

In cooking, some recipes are more difficult to do than others, because they take more time to finish or have more things to keep track of. It is the same for algorithms, and algorithms are better when they are easier for the computer to do. The thing that measures how hard an algorithm is is called complexity. When we ask how complex an algorithm is, often we want to know how long it will take a computer to solve the problem we want it to solve.

[adapted from Simple English Wikipedia "Algorithm" (ARiSE2, p.56)]

- 32. Following the definition in the text, which of the following is an algorithm?
 - a. a method for conducting an experiment
 - b. a list of foods that help people lose weight
 - c. the Fibonacci series (0, 1, 1, 2, 3, 5, 8, ...)
 - d. the ingredients needed to make a cake

33. According to the text, which of the following is a necessary condition to be an algorithm?

- a. It solves a problem uniquely.
- b. It is not slow.
- c. It tells exactly what to do.
- d. It is complex.
- 34. As they are used in the text, which of the following words can be considered a synonym of "algorithm": (I) instructions, (II) step, (III) recipe, (IV) way, (V) problem.
 - a. I, III, and IV b. I, II, and IV c. I, II, III, and IV d. II, III, IV, and V

- 35. Imagine you are considering two ways to get from Ikebukuro Station to Nishi-Waseda campus: (1) take the Yamanote line to Takadanobaba and then walk 15 minutes to campus; (2) Take the Fukutoshin line to Nishi-Waseda station and then walk 3 minutes up the stairs. How might these be compared from an algorithmic point of view?
 - a. (1) is better because it has less complexity.
 - b. (2) is better because it has less complexity.
 - c. Neither is better because they have identical complexity.
 - d. (3) Going by way of Shinjuku is better than both (1) and (2).

36. Which of the following research questions is most directly motivated by this article?

- a. What is the definition of an algorithm?
- b. What kind of data structure is best for storing data in a hard drive?
- c. Which method of doing a difficult computation by hand is fastest?
- d. Which information technology company is a good investment now?

End of Final Test

List of sources

- Kross E, Verduyn P, Demiralp E, Park J, Lee DS, et al. (2013) Facebook Use Predicts Declines in Subjective Well-Being in Young Adults. *PLoS ONE* 8(8): e69841.
- Kobayashi, L. (2015) The evolution of sedentary time. Public Health Perspectives (*PLoS One blog*). Retrieved from http://blogs.plos.org/publichealth/2015/08/12/sedentary/ on 20 Aug 2015.
- NatureIndex, "Spotting light-bulb moments in the brain". Retrieved from https://www.natureindex.com/countryoutputs/ireland/highlights/spotting-light-bulb-moments-in-the-brain/5bfe639f70f236d31b780ea2 on 6 December 2018.
- Nebel BJ, Wright RT (1998) Environmental Science: The Way the World Works, 6th Edition, Pearson Education.
- Sakuta Y, Kanazawa S, Yamaguchi MK (2018) Infants prefer a trustworthy person: An early sign of social cognition in infants. *PLoS ONE* 13(9): e0203541.

Simple English Wikipedia: "Algorithm". Retrieved from https://simple.wikipedia.org/wiki/Algorithm on 20 Aug 2015.

University of Oxford, "Children's sleep not significantly affected by screen time, new study finds". Retrieved from https://www.eurekalert.org/pub_releases/2018-11/uoo-csn110518.php on 6 December 2018.

Day	Class Period	Teacher's Name
Student ID		Student Name

Academic Reading 2 (AR2) Sample Final Test 3 Answer Sheet

Instructions: Use a HB pencil. 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 and erase any stray marks.

Ex.	٩		C	d	1	9	٩	b	C	d
1	۵	Ь	С	d	2	0	a	b	C	b
2	۵	Ь	С	d	2	1	۵	b	C	b
3	۵	Ь	С	d	2	2	۵	b	C	b
4	a	Ь	С	d	2	3	a	b	C	b
5	a	Ь	С	d	2	4	a	b	C	b
6	a	Ь	С	d	2	5	a	b	C	b
7	a	Ь	С	d	2	6	a	b	C	b
8	a	b	c	d	2	7	a	b	C	d
9	a	Ь	c	d	2	8	a	b	C	d
10	a	b	c	d	2	9	a	b	C	d
11	a	Ь	С	d	3	0	a	b	C	b
12	a	Ь	c	d	3	1	a	b	C	d
13	a	Ь	c	d	3	2	a	b	C	d
14	a	Ь	c	d	3	3	a	b	C	d
15	a	Ь	c	d	3	4	a	b	C	d
16	a	Ь	c	d	3	5	a	b	C	d
17	a	b	c	d	3	6	a	b	C	d
18	a	Ь	С	d						

Day	Class Period	Teacher's Name
Student ID		Student Name

Academic Reading 2 (AR2) Sample Final Test 3 Answer Sheet

Instructions: Use a HB pencil. 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 and erase any stray marks.



19	a		c	d
20	a	b	c	
21	a	b		d
22	a	b	C	
23	a	b	C	
24	a	b	C	
25		b	c	d
26	a	b		d
27	a	b		d
28	a	b	c	
29	a	b	c	
30		b	c	d
31	a	b	c	
32		b	c	d
33	a	b		d
34		b	c	d
35	a		c	d
36	a	b		d