Academic Reading 2 (AR2) Sample Final Test 2 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 AY2015 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 only 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. Select the statement that is NOT TRUE about the cloak developed by Berkeley Lab in the US.
 - a. The cloak wraps around a 3D object and hides it from detection via visible light.
 - b. The cloak can hide a 3D object of arbitrary shape.
 - c. The cloak can hide a 3D object but the cloak itself could still be seen.
 - d. The cloak can hide only microscopic objects.
- 2. What is the evidence showing that Mars has flowing water?
 - a. a narrow streak of ice in the dark side of the planet
 - b. the existence of salt-loving microbiotics
 - c. hydrated salts along with stripe marks
 - d. magnesium perchlorate detected by spacecraft
- 3. Who won half of the 2015 Nobel Prize in physiology and medicine?

a. Youyou Tu

b. Satoshi Ōmura

c. William C. Campbell

d. No one

- 4. How does the newly developed tractor beam lift and move objects?
 - a. by gravitational force

b. by sound wave

c. by electromagnetic force

d. by radio wave

- 5. Which of the following is TRUE?
 - a. Honey was not a common and popular sweetener for prehistoric people.
 - b. The association between humans and honeybees is a relatively new incident in history.
 - c. Beeswax, but not honey, would survive thousands of years at archaeological sites.
 - d. Researchers found evidence that honeybees lived in northerly sites such as Scotland and Scandinavia.
- 6. Researchers have developed a way to make sure that parent mosquitoes pass certain genes on to almost all of their offspring. What do they call this method?
 - a CRISPR-9
- b. gene drive
- c malaria
- d. parasites

- 7. What were researchers able to train pigeons to do?
 - a. to detect and eat malaria-carrying mosquitoes
 - b. to detect honey in ancient pots and jars
 - c. to recognize drinks which may cause heart disease
 - d. to recognize cancer tissue in breast images
- 8. Which of the following is true about <u>recent</u> in vitro fertilization (IVF) research?
 - a. Louise Brown became the first human to have been born using IVF.
 - b. After 30 years of work, researchers have successfully produced puppies by IVF.
 - c. The procedure for IVF in humans and that for IVF in dogs is mostly the same.
 - d. The researchers produced a german shepherd puppy from a chihuahua parent dog.

Part II (Goal 2): Recognizing Common Linguistic Features

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

[A] They are small, inexpensive, low-power, easy to use and don't wear out. _____, they are commonly found in appliances and gadgets used in homes or businesses.

9. Which of the following logical connectors best fits in the blank?	
a. In the same way b. Nevertheless c. Meanwhile d. For that reason	
[B] Some proteins perform largely structural roles, movements of the proteins actin myosin ultimately are responsible for the contraction of skeletal muscle.	and
[Wikipedia, "Biochemist	try"]
10. Which of the following logical connectors best fits in the blank? a. Unless b. Thereafter c. For instance d. Generally speaking	
[C] Water is treated in very different ways by different nutrition guides. Some nutrition guides not include water, while others include it, others make it the most important part or bapart of the guide.	
[Simple English Wikipedia, "Food gro	up"]
11. Which of the following logical connectors is LEAST likely to fit in the blank? a. and so b. while c. whereas d. and yet	
[D] This is an easy-to-understand algorithm for sorting. Computer scientists called it Bubble s smaller elements will rise to the top, changing their position in each run. Unfortunate the algorithm is not very good, it needs a long time (many passes through the stack cards) to sort it.	ely,
[Simple English Wikipedia, "Algorith	ım"]
12. Which of the following logical connectors bests fits in BOTH blanks? a. so b. because c. then d. reporting	
[E] After extracting the active component from the plant, Tu showed that it was effective aga	inst
the malaria parasite in animals and humans.	
[Bryner 2	015]
13. What type of connector is <u>After</u> ? a. cause b. temporal sequence c. explanation d. elaboration	
14. What type of connector is <u>showed</u> ? a. explanation b. attribution c. generalization d. example	
[F] This short section is designed to encourage you to prepare yourself for the development your academic reading skills. The tasks here encourage you to begin your study of academic reading by reflecting on your current skill level. Then, you will brainstorm topics of interest science and engineering so that you can tailor your reading choices to these interests. You will a share these topics with your classmates so that you can exchange personalized read recommendations with your peers. Finally, you will consider your own motivations for develop	mic t in also ling
your reading skills. [Rose 2	015]
15. Which of the following best describes the primary (main) and secondary (subordinate) organization of the text? a. primary: example — secondary: temporal sequence b. primary: elaboration — secondary: temporal sequence c. primary: contrast — secondary: elaboration d. primary: generalization — secondary: contrast	- 1

[G-1]₍₁₎"Achoo!!" ₍₂₎Some folks have allergies that flare up on a seasonal basis. ₍₃₎This spring has certainly not been kind to this group. ₍₄₎But if you're like me, battling your allergies is a year-round affair. ₍₅₎The common antihistamines available at every drug store have all at one point or another helped me breathe. ₍₆₎However, the off-the-shelf antihistamines many of us take to get us through allergy season have an additional effect: they may increase appetite. ₍₇₎Despite the fact that increased appetite is a fairy well-known side-effect of antihistamines, the packaging of my allergy meds had no mention of this.

[G-2]₍₈₎Histamine is a neurotransmitter which, in addition to mediating the inflammatory response, and thus symptoms of allergies, suppresses appetite. ₍₉₎Thus, antihistamines, which work by blocking the H1 histamine receptor, may remove this appetite suppressing signal. ₍₁₀₎Not surprisingly, a paper published in the journal *Obesity* suggests a possible link between the use of anti-histamines and body weight.

[Janiszewski 2015]

- 16. Which of the following is the correct description about how the text is written?
 - a. The text is written with objective register throughout.
 - b. The text is written with subjective register throughout.
 - c. The text begins with objective register and changes to a subjective register.
 - d. The text begins with subjective register and changes to an objective register.
- 17. Which of the following identifies and describes the sentence that is written most objectively?
 - a. (1), which contains an onomatopoeia (an imitation sound) that differs from culture to culture
 - b. (6), which is written from the first person's point of view
 - c. (8), which offers a technical term and its scientific definition
 - d. (10), which begins with a sort of an evaluative expression 'not surprisingly'
- 18. Where is a personal experience found in the text?
 - a. paragraph [G-1] b. paragraph [G-2]
 - c. both paragraphs [G-1] and [G-2] d. neither paragraph [G-1] nor [G-2]

Part III (Goal 3): Comprehending Texts

Instructions: Answer the following questions.

- 19. Which of the following is TRUE about the description of a step in the SQ3R method.
 - a. Try to make yes/no question rather than wh-questions.
 - b. If your question is not answered in the text, revise the question.
 - c. Take notes on controversial topics and dubious ideas.
 - d. Don't stop reading to check your comprehension until the end.
- 20. The second step of the SQ3R reading method is 'make questions about the content of the text that you would like to know the answers to'. What is the purpose of this step Q?
 - a. to remind yourself that you should skim and scan the text
 - b. to find out whether the author of the text has given sufficient information about the topic
 - c. to make sure that you are reading actively and for a purpose
 - d. to see whether you can be a successful text reviewer

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

[H-1] When the brain forms memories or learns a new task, it encodes the new information by

tuning connections between neurons. MIT neuroscientists have discovered a novel mechanism that contributes to the strengthening of these connections, also called synapses.

[H-2] At each synapse, a presynaptic neuron sends chemical signals to one or more postsynaptic receiving cells. In most previous studies of how these connections evolve, scientists have focused on the role of the postsynaptic neurons. However, the MIT team has found that presynaptic neurons also influence connection strength.

[H-3] "This mechanism that we've uncovered on the presynaptic side adds to a toolkit that we have for understanding how synapses can change," says Troy Littleton, a professor in the departments of Biology and Brain and Cognitive Sciences at MIT, a member of MIT's Picower Institute for Learning and Memory, and the senior author of the study, which appears in the Nov. 18 issue of *Neuron*.

[H-4] Learning more about how synapses change their connections could help scientists better understand neurodevelopmental disorders such as autism, since many of the genetic alterations linked to autism are found in genes that code for synaptic proteins.

[Massachusetts Institute of Technology 2015]

- 21. What is the main idea of the text?
 - a. Presynaptic neurons, as well as postsynaptic neurons, influence the strengthening of synapses.
 - b. MIT neuroscientists have discovered a mechanism that strengthens synapses.
 - c. Postsynaptic neurons influence the strengthening of synapses.
 - d. Learning more about how synapses change their connections may lead to a better understanding of neurodevelopmental disorders.
- 22. Which paragraph mentions possible future contributions of the study to other fields?
 - a. [H-1]
- b. [H-2]
- c. [H-3]
- d. [H-4]

- 23. What type of text is this?
 - a. research article
- b. Wikipedia article
- c. book review
- d. science news article

[I] Individual recognition is implied in a broad range of studies, especially in social rather than solitary animals, yet the traits responsible for this recognition have been identified in only a fraction of cases. When the same individuals interact repeatedly for a long period, recognition of individuals can play an important role in the avoidance of costs associated with agonistic interactions and the maintenance of stable social structure. Generally, individual recognition is more pronounced among highly social species, but the actual traits responsible for this recognition is poorly understood. In particular, studies on the visual cues used by animals to distinguish between familiar and unfamiliar social group members are taxonomically restricted, having only been described for some mammals, birds, and remarkably for paper wasps. In these described cases, features of facial colouration or pattern are the primary signal, although other cues might contribute to individual identification.

Recently, many examples of social cognitive abilities have been documented in fish, occasionally to a level of sophistication comparable to that of mammals and birds. For example, many social fish recognize individual group members visually, but the visual signals they use is unknown. One of the leading experimental systems for the study of social behaviour is the African cichlid *Neolamprologus pulcher*, a fish that lives in large family groups organized by dominance hierarchy (5–15 group members). *N. pulcher* can recognize group members using only visual cues, and distinguish familiar neighbours of the adjacent territory from strangers (i.e. dear enemy

relationship). They inhabit open water benthic habitats near the lake shore with good water transparency (down to 30 m depth). The cues for individual recognition such as chemically mediated cues are unlikely used in social communication. The visual signals they use for individual identification are unknown, but the variations in facial colour patterns among individuals of *N. pulcher* suggest a role for facial colour patterns in recognition.

[Adapted from Koda, M. et al. 2015]

- 24. What is the topic of this text?
 - a. role of visual cues in individual recognition
 - b. color patterns of social fish
 - c. signals used in recognition of sexes
 - d. Neolamprologus pulcher
- 25. Which of the following statements is TRUE according to the text?
 - a. Individual recognition is important for social as well as solitary animals.
 - b. Cognitive abilities of fish can never attain a level of sophistication comparable to that of mammals and birds.
 - c. Recognition of individual is important for the maintenance of stable social structure.
 - d. Facial colouration is highly consistent throughout *N. pulcher*, and so other cues might contribute to individual identification.
- 26. Which of the following statements is NOT TRUE according to the text?
 - a. Neolamprologus pulcher distinguishes group members only by visual cues.
 - b. Chemically mediated cues are unlikely to be used in social communication by social fish.
 - c. The variations in facial colour patterns suggest a role for facial colour patterns in recognition.
 - d. Research has clearly revealed which physical traits enable individual recognition in highly social species.

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

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

[J] The scope of biology is broad and therefore contains many branches and subdisciplines. Biologists may pursue one of those subdisciplines and work in a more focused field. For instance, molecular biology and biochemistry study biological processes at the molecular and chemical level, including interactions among molecules such as DNA, RNA, and proteins, as well as the way they are regulated. Microbiology, the study of microorganisms, is the study of the structure and function of single-celled organisms. It is quite a broad branch itself, and depending on the subject of study, there are also microbial physiologists, ecologists, and geneticists, among others.

Another field of biological study, neurobiology, studies the biology of the nervous system, and although it is considered a branch of biology, it is also recognized as an interdisciplinary field of study known as neuroscience. Because of its interdisciplinary nature, this subdiscipline studies different functions of the nervous system using molecular, cellular, developmental, medical, and computational approaches.

[OpenStax College, "Biology". Download for free at http://cnx.org/content/col11448/latest/]

scope of biology	 The scope of biology is broad· → contains many A
B of subdisciplines	 molecular biology and biochemistry ▶ study biological processes at the molecular and chemical level interactions among molecules (e·g·, DNA, RNA, and protein) the way they are regulated microbiology study of microorganisms studies the structure and function of single-celled organisms contains microbial physiology, ecology, and genetics neurobiology studies the biology of the nervous system also known as
	ad and contains many subdisciplines such as molecular biology and and neurobiology· Each subdiscipline is further divided into several

27. Choose the word that best fills in blank (A).

a. subdisciplines

b. biologists

c. biological processes

d. scopes

28. Choose the word that best fills in blank (B).

a. scopes

branches.

b. many

c. examples

d. biologists

29. Choose the word that best fills in blank (C).

a. neuroscience

b. biological study

c. another field

d. interdisciplinary nature

- 30. If you were to turn the notes above into a topical outline, which of the following would be the most likely structure?
 - a. five first-level main ideas, each with two sub-topics
 - b. two first-level topics, the second one having three sub-topics
 - c. four first-level topics, each with two sub-topics
 - d. three first-level topics, each with one main idea
- 31. If you want to turn your topical outline into a detailed outline based on the notes above, what should you do?
 - a. Write a short summary.
 - b. Make a list of key words.
 - c. Write a short summary in the first paragraph and the reaction in the second paragraph.
 - d. Add main ideas to each topic.

Instructions: Read text [K] and answer the questions that follow it.

[K] **Background** Flashbacks are the hallmark symptom of Post-traumatic Stress Disorder (PTSD). Although we have successful treatments for full-blown PTSD, early interventions are lacking. We propose the utility of developing a 'cognitive vaccine' to prevent PTSD flashback development following exposure to trauma. Our theory is based on two key findings: 1) Cognitive science suggests that the brain has selective resources with limited capacity; 2) The neurobiology of

memory suggests a 6-hr window to disrupt memory consolidation. The rationale for a 'cognitive vaccine' approach is as follows: Trauma flashbacks are sensory-perceptual, visuospatial mental images. Visuospatial cognitive tasks selectively compete for resources required to generate mental images. Thus, a visuospatial computer game (e.g. "Tetris") will interfere with flashbacks. Visuospatial tasks post-trauma, performed within the time window for memory consolidation, will reduce subsequent flashbacks. We predicted that playing "Tetris" half an hour after viewing trauma would reduce flashback frequency over 1-week.

Methodology/Principal Findings The Trauma Film paradigm was used as a well-established experimental analog for Post-traumatic Stress. All participants viewed a traumatic film consisting of scenes of real injury and death followed by a 30-min structured break. Participants were then randomly allocated to either a



no-task or visuospatial ("Tetris") condition which they undertook for 10-min. Flashbacks were monitored for 1-week. Results indicated that compared to the no-task condition, the "Tetris" condition produced a significant reduction in flashback frequency over 1-week. Convergent results were found on a clinical measure of PTSD symptomatology at 1-week. Recognition memory between groups did not differ significantly.

Conclusions/Significance Playing "Tetris" after viewing traumatic material reduces unwanted, involuntary memory flashbacks to that traumatic film, leaving deliberate memory recall of the event intact. Pathological aspects of human memory in the aftermath of trauma may be malleable using non-invasive, cognitive interventions. This has implications for a novel avenue of preventative treatment development, much-needed as a crisis intervention for the aftermath of traumatic events.

[Holmes et al 2009]

- 32. What is the topic of this text?
 - a. test of a technique to relieve the after-effects of trauma
 - b. computer gaming habits of people who have flashbacks
 - c. the traumatic effects of playing Tetris on people
 - d. how gamers cause post-traumatic stress disorder
- 33. Which of the following could most reasonably be concluded from this text?
 - a. It may be useful for emergency first-responders to carry portable game systems.
 - b. Playing games like Tetris improves one's visuospatial imaging ability and speed.
 - c. People who play computer games may suffer post-traumatic stress disorder.
 - d. The Trauma Film paradigm is a cruel and unethical experimental procedure.
- 34. Which of the following follow-up research questions is most directly motivated by the text?
 - a. Do people have limited and selective cognitive resources?
 - b. Why is the Trauma Film paradigm an invalid experimental technique?
 - c. Why do people forget a traumatic event that they have experienced?
 - d. Do non-visuospatial games like text adventures have a similar effect?
- 35. Which of the following might also be called a 'cognitive vaccine'?
 - a. giving people an influenza shot at the beginning of the flu season
 - b. hiring TV personalities to participate in a televised quiz show
 - c. reading a humorous story with a child after scolding them for something
 - d. allowing students to use the Internet in order to gather information on a topic

- 36. Many Iraq War veterans reported experiencing post-traumatic stress disorder after returning home. Would the research described here be applicable to them?
 - a. Yes, because many of the veterans are young people who would enjoy playing Tetris.
 - b. No, because they saw the traumatic experience in real life rather than on film.
 - c. Yes, because soldiers are trained to have good visuospatial abilities.
 - d. No, because the traumatic memory has already been consolidated.

End of Final Test

List of sources

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Academic Reading 2 (AR2) Sample Final Test 2 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	Ь	©	d	20	a	6	©	d
2	a	Ь	©	d	21	a	6	©	a
3	a	Ь	©	d	22	a	b	©	a
4	a	Ь	©	d	23	a	b	©	d
5	a	Ь	©	d	24	a	b	©	d
6	a	Ь	©	d	25	a	b	©	d
7	a	b	©	d	26	a	b	©	d
8	a	Ь	©	d	27	a	b	©	d
9	a	b	©	d	28	a	b	©	d
10	a	Ь	©	d	29	a	b	©	(d)
11	a	b	©	d	30	a	b	©	d
12	a	b	©	d	31	a	b	©	d
13	a	Ь	©	d	32	a	b	©	d
14	a	Ь	©	d	33	a	b	©	(d)
15	a	Ь	©	d	34	a	b	©	(d)
16	a	Ь	©	d	35	a	b	©	(d)
17	a	b	©	d	36	a	b	©	d
18	a	Ь	©	d					

Academic Reading 2 (AR2) Sample Final Test 2 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		©	d
1	a	6		d	20	a	b		d
2	a	6		d	21		b	©	d
3		(b)	©	d	22	a	6	©	
4	a		©	d	23	a	b	©	
5	a	(b)		d	24		b	©	d
6	a		©	d	25	a	b		d
7	a	(b)	©		26	a	6	©	
8	a		©	d	27		b	©	d
9	a	(b)	©		28	a	b		d
10	a	(b)		d	29		b	©	d
11		(b)	©	d	30	a		©	d
12	a		©	d	31	a	Ь	©	
13	a		©	d	32		b	©	d
14	a		©	d	33		6	©	d
15	a		©	d	34	a	6	©	
16	a	(b)	©		35	a	6		d
17	a	6		d	36	a	b	©	
18		6	©	d					