

الاسم:  
الرقم:مسابقة في: اللغة الانكليزية  
المدة: ساعتان ونصف**Part One: Reading**

(Score: 11/20)

The writer in this article highlights the essential role of the hormone leptin in controlling obesity. Read it carefully, then answer the questions that follow.

**Obesity Control**

- 1 New studies on mice suggest that the hormone leptin can fundamentally change the brain's circuitry in areas that control appetite. Leptin acts during a critical period early in life, possibly influencing how much animals eat as adults. And later in life, responding to how much fat is on an animal's body, it can again alter brain circuitry that controls how much is eaten. Researchers say the findings are a surprise and help explain why weight control is so hard for some people.
- 2 Scientists knew that leptin is released by fat cells and that it tells the brain how much fat is on the body. They knew that animals lacking leptin become incredibly obese and that a few humans who, because of genetic mutations do not make the hormone, are also immensely fat.
- 3 Leptin injections immediately made animals and the handful of patients with leptin deficiencies lose their appetites. Their weight returned to normal.
- 4 But it was thought that leptin acted like most other hormones by attaching itself to brain cells and directly altering their activities.
- 5 Some investigators did not expect that leptin could actually change connections in the brain, strengthening circuits that inhibit eating and weakening those that spur appetite. However, few considered the possibility that there might be a critical period early in life when the hormone shaped the brain's circuitry, possibly affecting appetite and obesity in adulthood.
- 6 "It's fascinating," said Dr. Rudolph Leibel of Columbia University. "Obviously, we don't know what this looks like in humans, but it is possible that some of the differences in regulation of body weight that have been attributed to psychological processes or fat cell effects may be reflecting these central nervous system processes."
- 7 Dr. Jeffrey Flier, at the Medical Center in Boston, said the effects of leptin reminded him of the way the brain changed when memories were stored. It is almost as if the brain were developing a memory for the weight it wants the animals to be, Flier said, raising intriguing possibilities about weight regulation in people and about the "biological underpinning to our drive to eat and maintain certain weights."
- 8 In the first of two research papers published in *Science*, Dr. Richard Simerly and Dr. Sebastian Bouret at the Oregon Primate Research Center in Beaverton examined leptin's effects on the brain early in life. They referred to an article by Flier, showing that there was a surge of leptin in the brains of newborn mice, looking a lot like the surges of sex hormones that reshape the brain in critical periods early in development. "Could leptin," they asked, "be doing something similar?" "Bingo," Simerly said. "The lights went on."
- 9 As adults, mice with a genetic mutation preventing them from making leptin had weaker nerve connections in the arcuate nucleus of the hypothalamus, which controls eating behavior. That area of the brain, the researchers realized, develops soon after birth. Perhaps, Simerly said, if he gave the leptin-deficient mice a surge of leptin early in life, mimicking what normal mice experience, he could reshape their brains, making them look like those of mice without the genetic defect.
- 10 It worked, Simerly and Bouret reported, raising questions about what happens normally during development in mice and people that might determine whether they were destined to be fat or thin.
- 11 In the second paper, Dr. Jeffrey Friedman and his colleagues at Rockefeller University in New York examined two brain pathways in adult mice: one increases appetite and another decreases it. By examining the actual nerves in slices of brain, they said, they saw that mice that make no leptin

have strong brain circuits in the area of the hypothalamus that signal them to eat. They have correspondingly weak circuits that signal them to stop eating.

- 12 Friedman and his colleagues then gave the animals leptin. Researchers reported that within six hours, their brain circuits changed, becoming like those in normal animals. Two days after being treated with leptin, the mice lost their huge appetites.
- 13 “Right now there is an assumption on the part of the public that differences in weight are accounted for by discipline,” Friedman said. “That assumes that the drive to eat is the same in all people,” he said, “but this says there is not only a dynamic system that controls weight but that the wiring diagram is different in the obese.”

### Questions

A. Answer each of the following questions in 2 or 3 sentences of your own.

1. What makes the new explanation of obesity so special nowadays? (Score: 01)
2. Identify the writer’s tone in Paragraphs 6, 7, and 8. Illustrate with evidence. (Score: 1½)
3. Identify two types of audiences, other than the *general reader*, the writer possibly addresses; then state the interest each type finds in the article. (Score: 01)
4. Which sentence in Paragraph one serves as the thesis statement? Justify your answer. (Score: 1½)
5. How does the writer reveal credibility? Illustrate with three pieces of evidence. (Score: 1½)

B. The following statements are false because they misinterpret the meaning conveyed in the above article. Rewrite each statement so that it agrees with what the writer says or implies. (Score: 1½)

1. The more leptin you have, the more obese you become.
2. We infer from the article that obesity is solely attributed to psychological factors.
3. Lack of leptin genes, which brings about obesity, hits adulthood only.

C. Write a one-sentence summary of Paragraph 11. (Score: 01)

D. Identify the sentence pattern of each of the following: (Score: 01)

1. Sentence 2 of Paragraph 2, “They knew that animals... .”
2. Sentence 1 of Paragraph 4, “But it was ... .”
3. Sentence 2 of Paragraph 9, “That area of the brain ... .”
4. Sentence 1 of Paragraph 11, “In the second paper,... .”

E. Scan Paragraphs 5 to 8 to find words that have the following meanings: (Score: 01)

1. stimulate
2. fascinating
3. basis
4. flow of

### Part Two: Writing

(Score: 09/20)

*Obesity has different negative effects on the obese: physically, psychologically, and socially. Discuss the above statement, focusing on two of these effects, and then suggest possible solutions that might minimize obesity’s dramatic influences.* Support your discussion with enough evidence. Develop your ideas in a 250-300-word essay of unified, coherent, and properly sequenced paragraphs. See that, in your introduction, you put your reader in the general atmosphere of your topic and clearly provide a thesis statement, and that each of your body paragraphs starts with a topic sentence which you back up with relevant supporting details. Draft, revise, and proofread your essay. Your writing will be assessed for **both ideas** and **form**. [Score: **05** for ideas, **03** for language and style, and **01** for tidiness and legible handwriting]

# SECONDARY CYCLE CERTIFICATE

Exam Session of June 2005

*Life Sciences and General Sciences Sections*

English as a 1<sup>st</sup> Foreign Language

ANSWER KEY

**Competencies:** Utilize reading strategies.

Develop literal and interpretive comprehension of printed discourse.

Produce transactional writing.

- A. 1.** The “new explanation” is of great significance because it shows that obesity is not only due to psychological factors but also to a biological one, the effect of leptin hormone.
- 2.** In general, the writer’s tone is serious, objective, positive, optimistic, overjoyed, etc. Words like “fascinating” “intriguing” “Bingo”, “the lights went on” reflect this tone. Besides, his reference to facts, reports, researches reveals objectivity and seriousness.
- 3.** Possible audiences other than the general reader are:
- Nutritionists learn about factors involved in obesity problems.
  - Researchers/ scientists will track down recent researches and experiments. conducted to uncover further facts about overweight and obese people.
  - Psychologists learn about the psychological effects of obesity on their patients’ behavior and mentality .
  - Sociologists find interest in the text with regard to the social problems obesity results in.
  - Obese may find answers to their problems along with solutions and measures suggested by scientists for fighting obesity.
- 4.** - Sentence 1 is the thesis statement.
- The controlling idea that the writer elaborates is how the hormone leptin controls appetite.
- 5.** Credibility is revealed in the writer’s use of names, results of researches, scientific reports, papers, scientific journals, facts and experiments.
- B.** False statements.
1. Presence of leptin prevents developing obesity.
  2. Obesity is due to psychological and biological factors.
  3. Lack of leptin hits childhood and adulthood as well.
- C.** Suggested summaries
1. The writer in paragraph 11 says that Dr. Jeffrey Friedman and his colleagues noticed that mice lacking in leptin become obese/ develop obesity.
  2. The writer in paragraph 11 says that researchers have observed that lack in leptin gene has pushed mice to overeat and, consequently, develop obesity.
- D. 1.** Sentence 2, Paragraph 2, “They knew that... .” – Cause- effect
- 2.** Sentence 1, Paragraph 4, “But it was... .” – Comparison/ Contrast
- 3.** Sentence 2, Paragraph 9, “That area... .” – Time order/ Chronological
- 4.** Sentence 1, Paragraph 11, “In the second... .” – Contrast
- E. 1.** Stimulate... Spur, (paragraph 5)
- 2.** fascinating... intriguing (paragraph 7)
- 3.** Support ... underpinning (paragraph 7)
- 4.** flow of... surge (paragraph 8)