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**全国 2010 年 4 月高等教育自学考试  
英语科技文选试题  
课程代码: 00836**

**I. Directions: Add the affix to each word according to the given Chinese, making changes when necessary. (10%)**

- |                |        |
|----------------|--------|
| 1. instinct    | 本能地    |
| 2. mathematics | 数学家    |
| 3. reverse     | 不可逆转性  |
| 4. quality     | 定性的    |
| 5. subject     | 主观的    |
| 6. spring      | 子孙; 后代 |
| 7. culture     | 水产养殖   |
| 8. sense       | 感觉的    |
| 9. compressed  | 超高度压缩的 |
| 10. flaw       | 完美地    |

**II. Directions: Fill in the blanks, each using one of the given words or phrases below in its proper form. (12%)**

- |             |           |                  |                         |
|-------------|-----------|------------------|-------------------------|
| emerge from | wind up   | bump into        | in the justification of |
| what's more | under way | be applicable to | run out of              |

in phase                  stem from                  in common                  submit to

11. Light lines occur where the light waves are \_\_\_\_\_.
12. I didn't think Jack and John had anything \_\_\_\_\_.
13. Companies are required to \_\_\_\_\_ monthly financial statements to the board.
14. What results have \_\_\_\_\_ your talk?
15. They are trying to find a solution that \_\_\_\_\_ all the problems.
16. It is harmful to my health, and \_\_\_\_\_, it is no good to my work.
17. After the star \_\_\_\_\_ fuel, the outer portion explodes, forcing the core of the star to collapse.
18. The general began his army life as a private soldier and \_\_\_\_\_ as ruler of his country.
19. When production gets \_\_\_\_\_, a hologram of each newly manufactured propeller is superimposed on the hologram of the defect-free model.
20. He said this \_\_\_\_\_ his action.
21. I \_\_\_\_\_ an old friend of mine at the gas station.
22. Dependence on alcohol often \_\_\_\_\_ unhappiness in the home.

### III. Directions: Fill in each blank with a suitable word given below. (8 %)

raised    retrieved    into    provides    by    sheet    examines    deposited

New research challenges the generally accepted belief that substantial ice sheets could not have existed on Earth during past super-warm climate events. The study 23 researchers at Scripps Institution of Oceanography at UC San Diego 24 strong evidence that a glacial ice cap, about half the size of the modern day glacial ice 25, existed 91 million years ago during a period of intense global warming. This study offers valuable insight 26 current day climate conditions and the environmental mechanisms for global sea level rise. The new study 27 geochemical and sea level data 28 from marine microfossils 29 on the ocean floor 91 million years ago during the Cretaceous Thermal Maximum. This extreme warming event in Earth's history 30 tropical ocean temperatures to 35-37°C (95-98.6° F), about 10°C (18° F) warmer than today, thus creating an intense greenhouse climate.

## PART B: TRANSLATION

### IV. Directions: Translate the following sentences into English, each using one of the given words or phrases below. (10%)

be bound up with    account for    opt for    take...for granted    an array of

31. 父亲让我选职业，我选择当律师。

- 32.人类的未来与生命科学的发展密切相关。
- 33.由于提供了一系列统计数字，他的论证更有说服力了。
- 34.农民占全国人口的大多数。
- 35.我认为修建新路是理所当然的。

**V. Directions: Translate the following paragraph into Chinese.(15%)**

36. The technological and scientific age in which we live can accordingly be regarded as both positive and negative. It is positive because of the hopes aroused by science as a result of the progress made in the therapeutic treatment, the relief of human suffering, the improvement of individual and collective welfare, and the creation of forms of culture which the mass of the population can enjoy or which offer increased scope for individual freedom. It is negative because of the increasing duality of the societies in which we live. Inequalities exist not only between rich countries and poor, between those which have research centers and industries and those which do not, but also within each national or cultural community.

**PART C: READING COMPREHENSION**

**VI. Directions: Read through the following passages. Choose the best answer and put the letter in the bracket. (20%)**

**(A)**

In discovering the genes responsible for storing fat in cells, scientists at the Albert Einstein College of Medicine of Yeshiva University have answered one of biology's most fundamental questions.

Scientists had previously identified the genes responsible for synthesizing fat within cells. But the genes governing the next step--packaging the fat inside a layer of phospholipids and proteins to form lipid droplets--have long been sought, and for good reason.

“Storing fat in lipid droplets appears crucially important for enabling cells to use fat as an energy source,” says Dr. David Silver, assistant professor of biochemistry at Einstein. He and his colleagues identified two genes that are crucial for packaging fat into lipid droplets. They called the genes FIT1 and FIT2 (for Fat-Inducing Transcripts 1 and 2). Both genes code for proteins that are more than 200 amino acids in length, and the two genes are 50 percent similar to each other. The amino acid sequences of the FIT proteins do not resemble any other known proteins found in any species, indicating that the FIT genes comprise a novel gene family.

The researchers conducted several different experiments to confirm the roles of FIT1 and FIT2 in fat storage. In one experiment, they overexpressed both FIT1 and FIT2 genes in human cells. While the rate of fat synthesis stayed the same in both “overexpressed” and control cells, the number of lipid droplets in the “overexpressed” cells increased dramatically, between four- and six -fold.

Using a different tactic to evaluate FIT function, the researchers next “knocked down” FIT2 in mouse fat cells. Their reasoning: If FIT2 is indeed essential for lipid droplet formation, then suppressing FIT2 expression should abolish lipid-droplet accumulation. Examination of these fat cells for lipid droplets revealed that cells with suppressed FIT2 expression had a drastic reduction in lipid droplets.

Finally, the researchers carried out a similar FIT2 “knock down” experiment in a whole animal--the zebrafish. Zebrafish eggs were injected with a segment of DNA designed to interfere with FIT2 expression. Then, to induce lipid droplet formation in zebrafish larvae, free-swimming six-day-old larvae were fed a high-fat diet for six hours. Although the larvae had exhibited normal feeding behavior, examination of their livers and intestines revealed a near-absence of lipid droplets.

“These lines of evidence supported our conclusion that FIT genes are necessary for the accumulation of lipid droplets in cells,” says Dr. Silver. “Now that we’ve identified the genes and the proteins they code for, it should be possible to develop drugs that can regulate their expression or activity. Such drugs could prove extremely valuable, not only for treating obesity, but for alleviating the serious disorders that arise from obesity including type 2 diabetes and heart disease.”

37. What is the passage mainly concerned with? ( )

- A. FIT proteins.
- B. Identification of the genes responsible for storing fat in cells.
- C. The discovery of the genes responsible for synthesizing fat in cells.
- D. Why the FIT genes are necessary for the accumulation of lipid droplets in cells.

38. The phrase “knocked down” in line 1, para 5 is closest in meaning to ( )

- A. suppressed
- B. pressed out
- C. hit
- D. destroyed

39. What can be said about FIT1 and FIT2 according to the passage? ( )

- A. Cells with their suppressed expression have more lipid droplets.
- B. Cells with their over-expression have fewer lipid droplets.
- C. They are different from other gene families.
- D. They are more similar than different to each other.

40. Which of the following statements best describes the conclusion of the several different experiments?( )

- A. Lipid droplets were almost absent.
- B. Drugs can be developed to regulate the expression of FIT genes.
- C. Lipid droplets can be increased or reduced by different expressions of FIT genes.

D. FIT genes induce lipid droplet accumulation in cells.

41. What is the one of the implications of the discovery of FIT genes?( )

- A. Drugs can thus be developed to help to keep to a sensible body weight.
- B. Drugs can thus be developed to effectively palliate diseases arising from obesity.
- C. Diabetes can be cured.
- D. Heart disease can be warded off.

### (B)

Futurologists have not been very precise about how, and how much, digital media will change our lives. Most comment has focused on the expectation that consumers will soon be able to use their TV or PC to shop, bank and order movies from their armchair. Commentators envisage more dramatic changes to everyday life. Nicholas Negroponte, director of MIT's Media Lab, believes that a key development over the next five years will be the "personalization" of the computer, with wearable devices such as a wrist-mounted TV, computer and telephone. Peter Cochrane, head of research at British Telecom, looks further ahead, asking us to "imagine a virtual reality interface, with your visual cortex flooded by information from spectacle-mounted or contact lenses augmented by directional audio input, tactile gloves and prosthetic arms and fingers that will give you the sensation of touch, resistance and weight".

Historically, enthusiasts for new technologies have usually been overoptimistic about the speed of change. Most new technologies take longer to be adopted by the general public than these enthusiasts expect, although there have been exceptions: once they had reached critical mass, VCRs and mobile phones took off faster than most experts predicted. Arguably, everyday life in the advanced economies changed more between the 1880s and the 1930s than in the last fifty years or, possibly, the next. Nevertheless, it is valid to talk about a digital "revolution", since the extent of change is dramatic by any standards and digital technology is its biggest single driving force. Even if the enthusiasts overstate how quickly things will change, they may turn out to be right about the scale of that change.

At this stage, no one knows how the digital revolution will develop. Although the technology itself is now becoming somewhat more predictable, exactly how, and how fast, things change will depend not only on technological developments but also on the policies of key commercial and political players, especially in the US. Less predictable is how enthusiastically consumers will take to this technology on an everyday, mass-market scale. Least predictable are the socio-cultural and geo-political responses: Will it encourage materialism and erode religious belief, or lead to a religious backlash? Will it make people happier?

42. What does the passage mainly discuss?( )

- A. The likely impact of digital technology on everyday life.
- B. The improvements made in the world of mass communication.
- C. The applications of digital media in businesses and our lives.
- D. The overoptimistic feelings people hold about the new technologies.

43. What Peter Cochrane says chiefly means that \_\_\_\_\_. ( )
- A. the future will see electronic people doing most of work for human beings
  - B. dramatic changes will take place in our everyday life
  - C. humans will be deprived of the sensations of touch, resistance and weight
  - D. our minds will be so flooded with information that we may be confused
44. It is implied in the second paragraph that \_\_\_\_\_. ( )
- A. some people are overenthusiastic about the scale of change digital media will bring us
  - B. the speed and scale of change brought to us by the digital media will be dramatic
  - C. today's changes will in no way match the changes taking place between the 1880s and the 1930s
  - D. no one is sure to what extent digital technology will change the media
45. In terms of the scale of change, the author considers the present change \_\_\_\_\_. ( )
- A. as a revolution
  - B. as being inestimable
  - C. as being superficial
  - D. as one of the old changes
46. What the present change will turn out to be will depend on \_\_\_\_\_. ( )
- A. technological innovation in this domain
  - B. what social and cultural changes will take place
  - C. whether consumers greet this change with enough enthusiasm
  - D. all of the above

**VII Directions: Read the following passage, and then fill in the table with the information based on the passage.(10%)**

It is increasingly common to hear people referring to “the nanotechnology industry”, just like the software or mobile phone industries, but will such a thing ever exist? Many of the companies working with nanotechnology are simply applying our knowledge of the nanoscale to existing industries, whether it is improving drug delivery mechanisms for the pharmaceutical industry, or producing nanoclay particles for the plastics industry. In fact nanotechnology is an enabling technology rather than an industry in its own right. No one would ever describe Microsoft or

Oracle as being part of the electricity industry, even though without electricity the software industry could not exist. Rather, nanotechnology is a fundamental understanding of how nature works at the atomic scale. New industries will be generated as a result of this understanding, just as the understanding of how electrons can be moved in a conductor by applying a potential difference led to electric lighting, the telephone, computing, the internet and many other industries, all of which would not have been possible without it. While it is possible to buy a packet of nanotechnology, a gram of nanotubes for example, it would have zero intrinsic value. The real value of the nanotubes would be in their application, whether within

existing industry, or to enable the creation of a whole new one.

*Nanotechnology*

Applications	Defining feature	Kind of technology	Result	Real value
Improving drug delivery Mechanisms; <u>47</u> .	A fundamental understanding of <u>48</u> .	<u>49</u> .	<u>50</u> .	<u>51</u> .

## PART D: WRITING

**VIII. Directions: Write a passage (150-200 words) in English on the following title. Develop the ideas according to the Chinese outline given below.(15%)**

### 52. Early Education

- (1) 许多家长都希望孩子早日成才，慷慨而又盲目地投入。
- (2) 早教机构良莠不齐，收费昂贵。
- (3) 早教不能光注重幼儿的技能培养，应重点塑造人格。