

Part One: Reading Comprehension

(Score: 12/20)

In the following selection, Alexandra Levit discusses the issue of automation in the workplace. Read it carefully, and then answer the questions that follow.

A Robot May Be Trained to Do Your Job

1 In my presentations, when I mention the terms “the future of work” and “automation” in the same sentence, I often see the audience choked. People’s worst fear is that their job will soon be taken over by the equivalent of *Rosie the Robot*. Even though we are only in the beginning stages of workforce automation, I am optimistic about the effect it will have on human workers.

2 Over the last two decades, machines have indeed replaced many human jobs in industries like manufacturing, hospitality, transportation and customer service. But here is what I find interesting: we hang our hats on the idea that there are certain professions, such as teaching and caregiving, in which humans could never be replaced by robots because of the level of personal interaction required.

3 However, according to Richard Yonck, executive director and analyst for Intelligent Future Consulting and author of the forthcoming book *Heart of the Machine: Our Future in a World of Artificial Emotional Intelligence*, we should never say “never”.

4 “Starting in the mid-2000s, due to better computer hardware and algorithms, we made some major leaps in deep learning,” he said in an interview. “As a result, we are now developing emotional computing and software programs that are aware of our moods and intentions and are able to respond accordingly.”

5 For example, I might be upset at my desk, reading an irate email from a disturbing client. Through text analysis or facial expression recognition, a program on my laptop could identify the high level of emotion, understand what is about to happen, and warn me to take a deep breath before I send something I will regret.

6 Emotion recognition software is making waves in education, too. Researchers from North Carolina State University showed that software that tracks facial expressions can accurately assess the emotions of students engaged in interactive online learning and then predict the effectiveness of online tutoring sessions.

7 Affective computing and emotional recognition in software are likely to come into common use sooner than in robotics. So can we stop worrying that humanoid robots will take over certain jobs such as those of health workers?

8 Not necessarily. In Japan, the rapidly aging population and shrinking workforce have led to significant advances in social robotics. *Riken and Sumitomo Riko Company* has released *Robear*, a nursing robot that looks like a tall bear and can lift patients out of bed and help them move. Strong, gentle and nonthreatening, *Robear* can converse and interact with patients on a rudimentary level, not on an advanced one.

9 Then, there is *Jibo*, which is used mostly in the home — for now. *Jibo*, designed at Massachusetts Institute of Technology, uses speech and facial recognition and natural language processing to learn from its interactions with people. This little “guy” is on my wish list, and I cannot wait for it to suggest what I should have for dinner and take video of my child’s birthday party without being prompted. I am sure I will get mad at it sometimes, but we will make up as soon as I see its movements mimicking human sadness.

10 Realistically, these technologies have far to go. For an idea of how long it might be before social robots can do your job, look at Microsoft Windows’ personal assistant *Clippy*. It took 25 years for that irritating paper clip to evolve to the current *Cortana*, a more intelligent personal assistant that helps you find things on your machine, manages your schedule and tells jokes that it knows you will find funny.

11 The widespread adoption of social robotics in the workplace faces a host of potential problems, including a lack of infrastructure and power requirements, deficient awareness of surroundings, and public resistance. Eventually, though, the moment will come when machines possess empathy, the ability to innovate will uniquely remain human.

12 I think the only way forward is to look at artificial intelligence developments as an opportunity rather than a threat. We need a shift in thinking that success is no longer about our level of knowledge but about

our level of innovative intelligence. If we accept the process of lifelong learning, in which we adapt to new ways of working as technology improves, we will always find roles that take advantage of our best qualities.

13 Maybe I am overly optimistic, but I also believe that behind every highly intelligent machine will be humans who help build it, train it, distribute it, advise it, and repair it when things go wrong. And until machines acquire consciousness, they will have trouble mastering the most complex aspects of human behavior, many of which we still do not understand.

14 Mr. Yonck agrees. “Social robots will interact with people, not just replace them. Human and machine will partner to provide services in ways we have not had before, each providing its own strengths,” he added.

15 Personally, I look forward to the day when my work-from-home job is not quite so lonely because *Jibo* is keeping me company.

Questions

A. Answer each of the following questions in 1-4 sentences in your own words.

1. Based on Paragraph 2, what field will machines fail to replace humans in and why? **(01)**

2. Based on Paragraphs 5 and 6, explain how emotional recognition software contributes to the work of clients and educators. **(01)**

3. Based on Paragraphs 10 and 11, show whether the panic that human workers have against social robotics in the workplace is justified or not. Support your answer with two pieces of evidence. **(1.25)**

4. In reference to Paragraphs 13 and 15, explain how the writer views the future role of robots in human’s life. **(01)**

B. 1. Identify two different tones in Paragraph 1. Explain your answer. **(01)**

2. What is the thematic relation between Paragraphs 3 and 4? Justify your answer. **(1.25)**

3. What three types of evidence does the writer use to achieve credibility? Provide examples. **(1.5)**

C. The table below shows the percentages of jobs replaced by robots in certain countries in 2012 and 2016. Read it carefully, and then answer the question that follows. **(01)**

| Robots Replacing Humans in the Workplace | | | | |
|--|----------------|----------|---------------|-------|
| Country \ Year | United Kingdom | Ethiopia | United States | China |
| 2012 | 30% | 60% | 30% | 40% |
| 2016 | 38% | 85% | 45% | 78% |

What do the percentages indicate about the replacement of humans by robots between the years 2012 and 2016? Explain your answer in 2-4 sentences.

D. Use contextual clues to figure out the meaning of each word in the box below, and then fill in the blanks with the correct words to complete the sentences that follow. The words are underlined in the selection. **(02)**

| | | | | |
|-----------------------------|-----------------------|-----------------------------|--------------------------|----------------------------|
| <u>forthcoming</u> (Par. 3) | <u>irate</u> (Par. 5) | <u>rudimentary</u> (Par. 8) | <u>current</u> (Par. 10) | <u>potential</u> (Par. 11) |
|-----------------------------|-----------------------|-----------------------------|--------------------------|----------------------------|

- Before you can upload a video, you need to have a/an _____ understanding of technology.
- Because I am _____, I am going to walk away and calm down before I use the new machine.
- Social robots will have the _____ to replace humans because of their emotional software programs.
- There will be multiple _____ applications that will address mathematical skills.

E. What does each of the following pronouns, **bold-typed** in the selection above, refer to? **(01)**

- we** (Paragraph 2)
- he** (Paragraph 4)
- we** (Paragraph 9)
- it** (Paragraph 10)

Part Two: Writing (Choose ONE of the two prompts below.) **(Score: 8/20)**

Prompt A: *Some people are optimistic that the coming technological and scientific changes will make life better, while some others think these changes will lead to a future in which people are worse off than they are today. In a well-organized argumentative essay of 250-300 words, show with which point of view you stand. Make sure that your essay supports your position and refutes the opposite point of view.*

Prompt B: *Technology plays a significant role in human's life, but overusing it has many drawbacks. In a well-organized essay of 250-300 words, explain the statement above. As you develop your essay, focus on the disadvantages of the overuse of technology.*

[Content and organization of ideas 3.5, language and style 3.5, tidiness and handwriting 01]

Life and General Sciences

English Language Exam

A Robot May Be Trained to Do Your Job

| Q | Answer Key | Score |
|-------|--|-------------|
| I-A-1 | Machines will fail in the field(s) of teaching and/or caregiving because they are unable to interact and communicate with their surroundings. (0.5 for the field and 0.5 for the reason) | 01 |
| I-A-2 | First, with clients, this program may cool down the temper of an angry manager who has just received an inappropriate email from a careless client or customer. This software warns the manager by providing him/her with the high level of emotions he/she is developing, so he/she needs to breathe and calm before taking any inappropriate reaction that he/she might regret later on. Second, with educators, the program provides the teacher with information about the student and identifies the students' emotional condition during an online course, as well as, the effectiveness of a tutoring session. (0.5 for each) | 01 |
| I-A-3 | There is no reason why human workers should panic about the invasion of automation in the workplace. First, these robots will face many problems such as people's resistance and power requirements. Second, no matter how much these robots are developed, they will always lack the ability to innovate, which is uniquely human. Third, new technologies need long time before they replace their old versions. (0.25 for the first part of the answer; two pieces of evidence/reasons are enough and 0.5 for each) | 1.25 |
| I-A-4 | The writer is fully aware of the limitations of robots, for she believes that they will not control human's aspects which are complex as long as they do not have the awareness needed to do so. However, at the same time, she is hopeful that a time will come when robots can take all human jobs and become a close companion to humans. (0.5 for each) | 01 |
| I-B-1 | The first tone, expressed by the writer, is optimistic. She reveals a positive attitude towards the effect robots will have in the workplace. The second tone, expressed by the writer's audience, is pessimistic/ scared / bewildered / amazed towards automation: the writer mentions that she often sees the audience "choked" when it comes to automation in work. (0.5 for each tone with its explanation) | 01 |
| I-B-2 | The thematic relation between Paragraphs 3 and 4 is that of statement-support/addition. In Paragraph 3, the writer states that Yonck believes people shouldn't say never to technology since technology is able to make the impossible possible. In Paragraph 4, the writer supports the same idea by explaining how technology makes an unbelievable leap with the invention of emotional software programs that interpret human feelings. (0.25 for identification, and 0.5 for the idea mentioned in each paragraph) | 1.25 |

| | | |
|--------------|---|-------------|
| I-B-3 | First, he uses specific names of robots, books, companies and countries such as in Paragraphs 1, 3, 8 and 10: "Rosie the Robot", " <i>Heart of the Machine: Our Future in a World of Artificial Emotional Intelligence</i> ", " <i>Riken and Sumitomo Riko Company</i> ", and " <i>Clippy</i> ". Second, he uses dates such as in Paragraphs 2 and 4: "last two decades" and "mid-2000s". Third, he uses experts' opinion such as in Paragraph 4 and 14: the opinion of Richard Yonck who is an executive director and analyst about the latest progress of technology. (0.5 for each) | 1.5 |
| I-C | The table entitled " <i>Robots Replacing Humans in the Workplace</i> " depicts/shows countries whose human workforce is replaced by robots over a period of time. The percentages show that the four countries encountered an increase in the use of robots instead of humans in the workplace: 30% to 38% in the United Kingdom, 60% to 85% in Ethiopia, 30% to 45% in the United States, and 40% to 78% in China. Thus, although Ethiopia scored the highest rank among the four countries, China made the highest leap in using robots in the workplace. (any other reasonable interpretation is acceptable) | 01 |
| I-D-1 | rudimentary | 0.5 |
| I-D-2 | irate | 0.5 |
| I-D-3 | potential | 0.5 |
| I-D-4 | forthcoming | 0.5 |
| I-E-1 | "we" refers to the writer and the readers / humans | 0.25 |
| I-E-2 | "he" refers to Richard Yonck | 0.25 |
| I-E-3 | "we" refers to the writer and Jibo | 0.25 |
| I-E-4 | "it" refers to Cortana | 0.25 |
| I-A | ideas and organization | 3.5 |
| I-B | language and style | 3.5 |
| I-C | tidiness and legible handwriting | 01 |