**FACULTAD DE INGENIERIA**

**NAME:**

**DATE:**

**PROGRAM: Ingeniería en Computación**

**A Reading Comprehension & Writing Exam**

March 25, 2020

Can robots be effective tools in combating the COVID-19 pandemic? A group of leaders in the field of robotics, including Henrik Christensen, director of UC San Diego's Contextual Robotics Institute, say “yes”, and outline a number of examples in an editorial in the March 25 issue of Science Robotics. They say robots can be used for clinical care such as telemedicine and decontamination; logistics such as delivery and handling of contaminated waste; and reconnaissance such as monitoring compliance with voluntary quarantines. "Already, we have seen robots being deployed for disinfection, delivering medications and food, measuring vital signs, and assisting border controls," the researchers write.

"For disease prevention, robot-controlled noncontact ultraviolet (UV) surface disinfection has already been used because COVID-19 spreads not only from person to person via close contact respiratory droplet transfer but also via contaminated surfaces," the researchers write. "Opportunities lie in intelligent navigation and detection of high-risk, high-touch areas, combined with other preventative measures," the researchers add. "New generations of large, small, micro, and swarm robots that are able to continuously work and clean (i.e., not only removing dust but also truly sanitizing/sterilizing all surfaces) could be developed."

In terms of telepresence, "the deployment of social robots can present unique opportunities for continued social interactions and adherence to treatment regimes without fear of spreading more disease," researchers write. "However, this is a challenging area of development because social interactions require building and maintaining complex models of people, including their knowledge, beliefs, emotions, as well as the context and environment of interaction."

"COVID-19 may become the tipping point of how future organizations operate," researchers add. "Rather than cancelling large international exhibitions and conferences, new forms of gathering -- virtual rather than in-person attendance -- may increase. Virtual attendees may become accustomed to remote engagement via a variety of local robotic avatars and controls."

"Overall, the impact of COVID-19 may drive sustained research in robotics to address risks of infectious diseases," researchers go on. "Without a sustainable approach to research and evaluation, history will repeat itself, and technology robots will not be ready to assist for the next incident."

https://www.sciencedaily.com

1. **Skimming (30)**

Choose from the list A-F the main idea for paragraphs 1-5. There is one extra letter that you do not need to use.

1. Robots being used in different roles such as telemedicine, cleaning and logistics.
2. Robots could develop social skills to interact with people in hospital.
3. Organizing meetings using different tools and means are the present tendency.
4. Robots are used to clean and sanitize all surfaces including highly contaminated ones.
5. Researchers will have to continue investigating and developing for future incidents.
6. Robots should be able to receive people in hospitals and give them medicine.

**Paragraph 1 ................**

**Paragraph 2 ................**

**Paragraph 3 ................**

**Paragraph 4 ................**

**Paragraph 5 ................**

* *Circle the letter corresponding to best answer for each question.*
1. **Vocabulary (10)**
2. The noun “tools” in line 1 can be understood as:
3. Place
4. Piece
5. Device
6. Technique
7. The noun “field” in line 2 can be replaced by:
8. army
9. arch
10. area
11. archive
12. The verb “used” in line 4 can be replaced by:
13. utilized
14. presented
15. mentioned
16. misused
17. The noun “reconnaissance” in line 6 can be substituted by:
18. Reference
19. Misunderstanding
20. Examination
21. Devolution
22. The verb “deployed” in line 7 can be replaced by:
23. made
24. seen
25. reduced
26. used
27. **Comprehension Questions (30)**
28. What examples in the field of clinical care are given as regards robotic use?

a. Assisting border controls

b. Caring of old people

c. Handling of contaminated waste

d. Telemedicine and decontamination

1. Researchers are considering developing new robots to…

a. work and clean non-stop

b. repair medicine equipment

c. prevent cancer

d. avoid traffic congestion

3. What could the deployment of social robots prevent?

1. Social interaction with ill people
2. Distributing medicine among ill people
3. Spreading more disease
4. Cleaning contaminated areas

4. Which of the following statements is NOT TRUE?

1. Researchers will continue working on social robots
2. Researchers will stop investigation after pandemic period
3. Researchers will encourage virtual exhibitions
4. Researchers will continue working for next incident

5. One can imagine that robots someday...

1. will develop social skills
2. will clean contaminated surfaces
3. will be successful with logistics
4. will monitor voluntary quarantines

6. The BEST title for this passage would be

1. COVID-19 threaten robotic development
2. COVID-19 and the roles for robots
3. COVID-19 and robots’ feelings
4. COVID-19 brings along technological drawbacks
5. **Reference (30)**

Write the referent word(s) at the end of each sentence.

1. What does the subject pronoun “they” in line 4 refer to?
2. What does the expression “such as” in line 5 exemplify?
3. What does the relative pronoun “that” in line 14 refer to?
4. What does the demonstrative pronoun “this” in line 18 refer to?
5. What does the possessive adjective “their” in line 19 indicate?
6. What does the reflexive pronoun “itself” in line 27 refer to?
7. **Writing (100)**

Choose one of the following topics and circle the letter corresponding to the chosen topic:

1. “Different steps robots follow when dealing with ill people”. Write a paragraph using the Process Description organization pattern studied (about 100 words).
2. “Nurses and robots can take care of patients infected with COVID-19”. Write a paragraph using the Compare-Contrast organization pattern studied (about 100 words).
3. “Advantages and disadvantages of the deployment of robots to help combat COVID-19. Write a paragraph using the Pros & Cons organization pattern studied (about 100 words).