

**For Teachers:** Please have the students read the sentences one at a time and correct their pronunciation of each sentence then have them repeat after you. Wait until after they read the sentence (use the number in place of the missing word) to have the students choose the correct answer to fill in the blank. When the students finish the article, move on to the further questions.

日本語訳なしタイプ B もございます。スクロールダウンするとございますので好きな方をご利用下さい。

#### 4[B] – Robot Manners

eTOC のレッスン以外で使用禁止 11.1(4B)A2E

- As robot <sup>科学技術 (かがくぎじゆつ)</sup> technology <sup>よくなる</sup> improves, robots are becoming an increasingly <sup>ますます</sup> important <sup>大切 (たいせつ) な</sup> part of our <sup>毎日 (まいにち) の</sup> daily <sup>生活 (せいかつ)</sup> lives. Robots, of course, have many <sup>もちろん</sup> advantages <sup>利点 (りてん)</sup> over <sup>人類 (じんるい)</sup> human beings. They work hard, <sup>一度 (いちど) も~ない</sup> never <sup>休 (やす) み</sup> need to <sup>不満 (ふまん) を言う</sup> rest, do not <sup>私 (はら) う</sup> complain, and <sup>さらに</sup> do not <sup>実行 (じっこう) する</sup> need to be <sup>仕事 (しごと)</sup> paid. Moreover, by performing <sup>集中 (しゆうちゆう) する</sup> simple <sup>~を必要 (ひつよう) する</sup> tasks, they make it <sup>可能 (かのう) な</sup> possible for human workers to <sup>製作者 (せいさくしゃ) ~に直面 (ちよくめん) する</sup> focus on <sup>~の仕方 (しかた)</sup> jobs that <sup>~するために</sup> require <sup>うまくやっっていく</sup> more skill. Yet <sup>~の仕方 (しかた)</sup> as more robots enter the work place, their <sup>~のために</sup> creators <sup>うまくやっっていく</sup> face <sup>うまくやっっていく</sup> a new <sup>うまくやっっていく</sup> problem— <sup>うまくやっっていく</sup> how to <sup>うまくやっっていく</sup> design them so that human beings can <sup>うまくやっっていく</sup> get along with them.

#### Further Questions&A

\*Ask student to answer the question on their own at first. If the student can't answer correctly, have him look at the last page and read the "example answer" for the question. Have the student try to memorize the answer, if it's too long or difficult, you should divide the sentence into 2 or 3 parts to make it easier to remember. Once they have memorized the answer, the teacher should ask the question one last time so that the student can practice answering. Also if you find any mistakes, please mark the page and let me know ASAP.

- 1) What are some <sup>利点 (りてん)</sup> advantages of using robot workers over human workers?  
人間の労働者を超えてロボットを使う利点は何ですか。
- Robots will work harder, do not need to rest and do not need to be paid.*
- A <sup>典型的 (てんけいてき) な</sup> typical robot today is TUG, which is now used in <sup>~以上 (いじょう)</sup> more than <sup>病院 (びょういん)</sup> 50 hospitals in <sup>車輪 (しゃりん)</sup> the United States. TUG is a box-like robot <sup>~することができる</sup> on wheels that is able to <sup>運 (はこ) ぶ</sup> carry things, <sup>おす</sup> push carts, and <sup>届 (とど) ける</sup> deliver messages. TUG is programmed to remember <sup>覚 (おぼ) える</sup> all the <sup>場所 (ばしょ)</sup> places <sup>願 (ねが) う</sup> in a hospital. When a nurse <sup>他 (ほか) の</sup> wishes to send something to another nurse, <sup>例 (たと) えば</sup> for example, <sup>~の代 (か) わりに</sup> instead of <sup>無駄 (むだ) な</sup> having to waste <sup>選 (えら) ぶ</sup> time carrying it, he or she puts it on TUG, <sup>目的地 (もくてきち)</sup> selects the destination, and the robot goes there on its own.
- Hospital managers like TUG because it <sup>許 (ゆる) す</sup> allows hospital <sup>労働者 (ろうどうしゃ)</sup> workers to <sup>全力 (ぜんりょく) を注 (そそ) ぐ</sup> concentrate on <sup>本来 (ほんらい)</sup> the jobs they were originally trained to do.

#### Further Questions&A

- 2) What is TUG? <sup>なん</sup> TUGは何ですか。  
*TUG is a robot designed for bringing items from one place to another in a building so that people can concentrate on their own jobs.*
- 3) What kind of things does TUG do? TUGはどのような事をしますか。  
*TUG can carry items, push carts and deliver messages and remember how to find its way through the building.*
- 4) How does a person use TUG? <sup>つか</sup>どのように TUG を使いますか。  
*They put the item on the robot and select where they want it to go.*

25. Unfortunately, not all hospital workers like TUG. Bilge Mutlu, a specialist in  
残念 (ざんねん) なことに 専門家 (せんもんか)  
 26. human-robot interactions at the University of Wisconsin—Madison, studied the  
反応 (はんのう) 見 (み) つけた 嫌 (きら) う  
 27. reaction of workers to TUG in one hospital. He found that many people disliked  
不足 (ふそく) 人類 (じんるい) 伝 (つた) える  
 28. the robot's lack of manners. For example, when a human being delivers a  
誰 (だれ) か または いつも  
 29. message to someone who is talking on the telephone, he or she will usually wait  
 30. until the person on the phone is free.  
簡単 (かんたん) に 中断 (ちゆうだん) する 大声 (おおごえ) で 知 (し) らせる  
 31. TUG simply interrupts the call and loudly announces, "TUG has arrived."

**Further Questions&A**

32. 5) Why do workers feel that TUG is impolite?  
無礼 (ぶれい) な なぜ労働者 (ろうどうしや) は TUG を無礼 (ぶれい) と感じる (かん) じるのですか。  
妨害 (ぼうがい) する 続 (つづ) ける  
 33. TUG will interrupt them when they are on the phone and used to continue to be just as loud at night as during the day.

34. Aethon, the company that makes TUG, is taking Mutlu's research seriously.  
会社 (かいしゃ) まじめに  
 35. Aethon already programmed TUG to speak more quietly at night. However, it  
すでに より 落 (お) ち着 (つ) いて しかしながら  
 36. is very difficult to program a robot to be polite. One possible answer, being  
発展 (はってん) した 学者 (かがくしや) 礼儀 (れいぎ) 正 (ただ) しい 可能 (かのう) な  
 37. developed by scientists at the University of Washington, in Seattle, is a program  
許 (ゆる) す 分析 (ぶんせき) する まねる ふるまい  
 38. that allows robots to analyze and imitate human behavior. This will only work,  
 39. however, if the human beings that the robots copy are themselves behaving  
礼儀 (れいぎ) 正 (ただ) しく ふるまう  
 40. politely.

**Further Questions&A**

41. 6) What is the goal of the team of scientists at the University of Washington mentioned in this article?  
言及 (げんききゆう) した 記事 (きじ) この記事 (きじ) を言及 (げんききゆう) したワシントン大学 (だいがく) の科学者 (かがくしや) のチームの目標 (もくひよう) は何 (なに) ですか。  
 42. They want robots to be able to learn human behavior and copy it.

43. 7) What would you do with a robot if you had one? もしあなたがロボットを持 (も) っていたら何 (なに) がしたいですか。  
食料品 (しょくりようひん) りよう  
 44. I would want a robot that would do the grocery shopping for me and do cooking for me.

45. 8) What is a rule you could teach to a robot to help it be more polite?  
あなたがロボットにもっと礼儀 (れいぎ) 正 (ただ) しくなるよう教 (おし) えることができる法則 (ほうそく) は何 (なに) ですか。  
 47. Call people by their own names and recognize people's moods and respond to them differently accordingly.  
見分 (みわ) ける 気分 (きぶん) 答 (こた) える  
それ (それ) に応 (おう) じて

48. (37) What will robot designers need to do from now on?  
 49. 1 Pay robots for performing simple tasks.  
防 (ふせ) ぐ 入 (い) れ替 (か) え 人類 (じんるい)  
 50. 2 Prevent robots from replacing human beings.  
熟練 (じゅくれん) した  
 51. 3 Build robots that can concentrate on highly skilled jobs.  
付 (つ) き合 (あ) いやすい  
 52. 4 Create robots that people feel comfortable working with.  
 53. (38) Why do people who run hospitals like TUG?  
なぜ

推測 (すいそく) する

54. 1 It can guess what task it should do next.  
 55. 2 It can move easily from one hospital to another.  
 56. 3 It can stop workers from wasting time on simple jobs.  
 57. 4 It can help new nurse finds their way around the hospital.

行動 (こうどう) した

58. (39) Bilge Mutlu discovered that people in one hospital  
 59. 1 felt that the way TUG acted as impolite.

嫌 (きら) った

60. 2 disliked it when TUG came too close to them.

拒否 (きょひ) した

61. 3 refused to listen to TUG's messages.

62. 4 thought that TUG worked too hard.

63. (40) What are some scientists trying to do?

64. 1 Use robots to teach people how to be more polite to each other.

振 (ふ) る舞 (ま) う ~のように

65. 2 Program robots to behave more like human beings.

分析 (ぶんせき) する

時々 (ときどき)

66. 3 Analyze the reasons why robots sometimes stop working.

~より

67. 4 Design robots that do more work at night than they do in the day.

## Review Questions

68. 1) What are some advantages of using robot workers over human workers?

69. *Robots will work harder, do not need to rest and do not need to be paid.*

70. 2) What is TUG?

71. *TUG is a robot designed for bringing items from one place to another in a building so that people can concentrate on their own jobs.*

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75. *They put the item on the robot and select where they want it to go.*

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79. *They want robots to be able to learn human behavior and copy it.*

80. 7) What would you do with a robot if you had one?

81. *I would want a robot that would do the grocery shopping for me and do cooking for me.*

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83. *Call people by their own names and recognize people's moods and respond to them differently accordingly.*

解答:(37)4(38)3(39)1(40)2

## Type B 日本語訳なし

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84. As robot technology improves, robots are becoming an increasingly important part of

85. our daily lives. Robots, of course, have many advantages over human beings. They  
 86. work hard, never need to rest, do not complain, and do not need to be paid.  
 87. Moreover, by performing simple tasks, they make it possible for human workers to  
 88. focus on jobs that require more skill. Yet as more robots enter the work place, their  
 89. creators face a new problem—how to design them so that human beings can get along  
 90. with them.

### Further Questions&A

91. 1) What are some advantages of using robot workers over human workers?

92. A typical robot today is TUG, which is now used in more than 50 hospitals in the  
 93. United States. TUG is a box-like robot on wheels that is able to carry things, push  
 94. carts, and deliver messages. TUG is programmed to remember all the places in a  
 95. hospital. When a nurse wishes to send something to another nurse, for example,  
 96. instead of having to waste time carrying it, he or she puts it on TUG, selects the  
 97. destination, and the robot goes there on its own. Hospital managers like TUG because  
 98. it allows hospital workers to concentrate on the jobs they were originally trained to do.

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 103. human-robot interactions at the University of Wisconsin—Madison, studied the  
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