

**Directions:** There are 2 passages in this section. Each passage is followed by some questions or unfinished statements. For each of them there are four choices marked A), B), C) and D). You should decide on the best choice and mark the corresponding letter on **Answer Sheet 2** with a single line through the centre.

**Passage one**

**Questions 46 to 50 are based on the following passage.**

In the beginning of the movie *I, Robot*, a robot has to decide whom to save after two cars plunge into the water—Del Spooner or a child. Even though Spooner screams "Save her! Save her!" the robot rescues him because it calculates that he has a 45 percent chance of survival compared to Sarah's 11 percent. The robot's decision and its calculated approach raise an important question: would humans make the same choice? And which choice would we want our robotic counterparts to make?

Isaac Asimov evaded the whole notion of morality in devising his three laws of robotics, which hold that 1. Robots cannot harm humans or allow humans to come to harm; 2. Robots must obey humans, except where the order would conflict with law 1; and 3. Robots must act in self-preservation, unless doing so conflicts with laws 1 or 2. These laws are programmed into Asimov's robots—they don't have to think, judge, or value. They don't have to like humans or believe that hurting them is wrong or bad. They simply don't do it.

The robot who rescues Spooner's life in *I, Robot* follows Asimov's zeroth law: robots cannot harm humanity (as opposed to individual humans) or allow humanity to come to harm—an expansion of the first law that allows robots to determine what's in the greater good. Under the first law, a robot could not harm a dangerous gunman, but under the zeroth law, a robot could kill the gunman to save others.

Whether it's possible to program a robot with safeguards such as Asimov's laws is debatable. A word such as "harm" is vague (what about emotional harm? Is replacing a human employee harm?), and abstract concepts present coding problems. The robots in Asimov's fiction expose complications and loopholes in the three laws, and even when the laws work, robots still have to assess situations.

Assessing situations can be complicated. A robot has to identify the players, conditions, and possible outcomes for various scenarios. It's doubtful that a computer program can do that—at least, not without some undesirable results. A roboticist at the Bristol Robotics Laboratory programmed a robot to save human proxies(替身) called "H-bots" from danger. When one H-bot headed for danger, the robot successfully pushed it out of the way. But when two H-bots became imperiled, the robot choked 42 percent of the time, unable to decide which to save and letting them both "die." The experiment highlights the importance of morality: without it, how can a robot decide whom to save or what's best for humanity, especially if it can't calculate survival odds?

46. What question does the example in the movie raise?

- A) Whether robots can reach better decisions.
- B) Whether robots follow Asimov's zeroth law.
- C) How robots may make bad judgments.
- D) How robots should be programmed.

47. What does the author think of Asimov's three laws of robotics?
- A) They are apparently divorced from reality.
  - B) They did not follow the coding system of robotics.
  - C) They laid a solid foundation for robotics.
  - D) They did not take moral issues into consideration.
48. What does the author say about Asimov's robots?
- A) They know what is good or bad for human beings.
  - B) They are programmed not to hurt human beings.
  - C) They perform duties in their owners' best interest.
  - D) They stop working when a moral issue is involved.
49. What does the author want to say by mentioning the word "harm" in Asimov's laws?
- A) Abstract concepts are hard to program.
  - B) It is hard for robots to make decisions.
  - C) Robots may do harm in certain situations.
  - D) Asimov's laws use too many vague terms.
50. What has the roboticist at the Bristol Robotics Laboratory found in his experiment?
- A) Robots can be made as intelligent as human beings some day.
  - B) Robots can have moral issues encoded into their programs.
  - C) Robots can have trouble making decisions in complex scenarios.
  - D) Robots can be programmed to perceive potential perils.