

SESSION 2007

**BREVET DE TECHNICIEN SUPERIEUR
- GROUPE 17 -**

Conception et réalisation de carrosseries
Constructions navales
Etude et réalisation d'outillages de mise en forme des matériaux
Industries céramiques
Industries des matériaux souples
Industries papetières
Maintenance et après vente automobile
Maintenance et après-vente des engins de travaux publics et de manutention
Mécanique et automatismes industriels
Mise en forme des alliages moulés
Mise en forme des matériaux par forgeage
Moteurs à combustion interne
Plasturgie
Productique bois et ameublement
Productique mécanique
Réalisation d'ouvrages chaudronnés
Traitements des matériaux

**LANGUE VIVANTE ETRANGERE
EPREUVE D'ANGLAIS**

DUREE : 2 HEURES

COEFFICIENT : 2

L'usage du dictionnaire bilingue est autorisé
Calculatrices et traducteurs électroniques sont interdits

Dès que le sujet vous est remis, assurez-vous qu'il soit complet.
Le sujet comporte 3 pages, numérotées de 1 à 3.

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Trust me, I'm a robot

As robots move into homes and offices, ensuring that they do not injure people will be vital. But how?

5 In 1981 Kenji Urada, a 37-year-old Japanese factory worker, climbed over a safety fence at a Kawasaki plant to carry out some maintenance work on a robot. In his haste, he failed to switch the robot off properly. Unable to sense him, the robot's powerful hydraulic arm kept on working and accidentally pushed the engineer into a grinding machine. His death made Urada the first recorded victim to die at the hands of a robot.

10 Despite the introduction of improved safety mechanisms, robots have claimed many more victims since 1981. Over the years people have been crushed, hit on the head, welded and even had molten aluminium poured over them by robots. Last year, there were 77 robot-related accidents in Britain alone.

15 With robots about to move into homes and workplaces, roboticists are concerned about the safety implications beyond the factory floor. In 2002 the number of domestic and service robots more than tripled, nearly outstripping their industrial counterparts. Japanese industrial firms are racing to build humanoid robots to act as domestic helpers for the elderly. What exactly is being done to protect us from these mechanical menaces?

20 One approach is to try to program them to avoid contact with people altogether. But this is much harder than it sounds. Getting a robot to navigate across a cluttered room is difficult enough, and it is going to become more difficult as robots will increasingly have self-learning mechanisms built into them. Their behaviour will become impossible to predict fully, since they will not be behaving in predefined ways, but will learn new behaviour as they go.

25 Then there is the question of unpredictable failures. What happens if a robot suffers a system failure just as it is performing heart surgery? You can, of course build in redundancy by adding backup systems. But this guarantees nothing : one hundred percent safety is impossible through technology because no matter how thorough you are, you cannot anticipate the unpredictable nature of human behaviour.

(353 words)

Adapted from *The Economist*, June 10th 2006

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TRAVAIL A EFFECTUER PAR LE CANDIDAT

I. COMPREHENSION (10 points)

Rédigez un compte-rendu du texte ci-joint. Vous veillerez à restituer tous les éléments importants dans un **français de qualité**. Indiquez le nombre de mots utilisés. (200 mots environ, plus ou moins 10%)

II. EXPRESSION (10 points)

Traitez les **deux** sujets suivants **en anglais**:

1. What are the main causes of robot-related accidents? Use your own words
(80 mots) 4 pts

2. Taking into account the domain in which you have specialised, give other examples of dangers and make suggestions to prevent accidents.

(120 mots)

6 pts

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