BREVET DE TECHNICIEN SUPERIEUR

SESSION 2007

ÉPREUVE DE LANGUE VIVANTE

GROUPE 9

ANGLAIS

Durée : 2 heures

Code : LVE 2

SPÉCIALITÉS	COEFFICIENTS
DOMOTIQUE	1
FLUIDES – ÉNERGIES - ENVIRONNEMENTS	1
INFORMATIQUE ET RÉSEAUX POUR L'INDUSTRIE ET LES SERVICES TECHNIQUES	1
SYSTÈMES ÉLECTRONIQUES	1

ATTENTION

- Les candidats du BTS I.R.I.S, Fluides – Énergies – Environnements et Systèmes Électroniques répondront aux questions pages 3 et 4.
- Les candidats du BTS Domotique répondront aux questions pages 5 et 6.

VOUS ÉCRIREZ DIRECTEMENT VOS RÉPONSES AUX EMPLACEMENTS PRÉVUS.
VOUS DEVEZ RENDRE LA TOTALITÉ DU DOCUMENT À LA FIN DE L'ÉPREUVE SANS EN DÉTACHER AUCUNE PAGE.

L'USAGE D'UN DICTIONNAIRE BILINGUE EST AUTORISÉ.
TOUT AUTRE MATÉRIEL EST INTERDIT.

As Nasa's Martian robot, Opportunity, wheels its way around the edge of the Victoria crater, a new breed of automaton is being developed.

Microbots, small spherical robots able to hop over a planet's rugged terrain could become the front line in planetary exploration in ten years' time, according to Professor Steven Dubowsky and his team at the Field and Space Laboratory at the Massachusetts Institute of Technology.

The main advantage of these microbots, each slightly larger than the size of a tennis ball, would be their ability to venture into the cracks and crevices of a planet such as Mars or the moon, where other robots cannot reach.

The hopping movement would allow the mini robots to leap over obstacles. The devices would travel approximately 1.5 meters with each hop, at an average of six hops per hour.

The hop is produced by a small foot that extends and retracts from the bottom of the sphere. By incorporating a stability system to keep the bot the right way up, the device is designed to harness energy. The microbots would be powered by a small fuel cell that would provide enough heat to keep their sensors and electronics operational.

Current rover robots need a flat area to land and must avoid tipping over. A single mishap could jeopardise a whole mission and cost a space agency hundreds of millions of dollars.

By employing microbots in large numbers, even the loss of a few hundred or a thousand of them would not derail a mission.

Working as a team the probes would be able to communicate with each other, relaying data via a local area network from those bots at the front of the chain to those further back that would then transmit the data back to base. The power sources and instruments contained in the mini robots is a key point of the team's research. The microbots' size naturally limits how many sensors or devices they could carry.

These mini foot soldiers of planetary exploration may well serve a vital link in the future discoveries of our solar system's moons and planets.

Adapted from CNN, October 23, 2006

I – COMPREHENSION (*24 POINTS : 2 = 12 POINTS*)

A – Entourez le titre qui correspond au texte : *3 pts*

a. Microbots, a new breed of giant robots.

b. A new generation of robots.

c. New robots for the army.

B – Complétez ce tableau sur les microrobots en citant le texte. *5 pts*

Their shape	.....
Their size	.....
Distance covered with one hop	.....
Their source of energy	.....
The name of the person who supervises the research.	.....

C – Vrai ou Faux ? Justifiez en citant le texte (indiquez le numéro de ligne). *6 pts*

a. Microbots are currently in use. **VRAI** **FAUX**

.....

b. Microbots travel 15 meters an hour. **VRAI** **FAUX**

.....

c. The hop system can store and release energy. **VRAI** **FAUX**

.....

d. At the moment rover robots must land on flat areas. **VRAI** **FAUX**

.....

e. If a few microbots were destroyed, the mission would inevitably fail. **VRAI** **FAUX**

.....

f. There is no restriction to the number of sensors microbots can carry. **VRAI** **FAUX**

.....

D – Ces affirmations sont toutes vraies ; trouvez pour chacune d'entre elles un extrait du texte qui la justifie (indiquez le numéro de ligne) : ***4 pts***

a. For the current robots, some planets are difficult to explore due to their landscape.

.....

b. Heat is necessary to prevent the microbots from breaking down.

.....

c. The scientists plan on sending a great quantity of microbots to explore planets.

.....

d. The microbots aren't independent; they function together.

.....

E – Traduisez le passage suivant : de « By employing microbots » (ligne 17) à « ...back to base. » (ligne 21). ***6 pts***

.....

.....

.....

.....

.....

.....

.....

.....

II – EXPRESSION 8 POINTS

Répondez en anglais à la question suivante :

Imagine future applications of microbots in everyday life. In what ways could they be useful ? (120 mots)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

I – COMPREHENSION 12 POINTS

A – Rédigez un compte-rendu du texte en français. (120 mots + ou – 10 %)
(Vous indiquerez le nombre de mots à la fin de votre compte-rendu) *9 pts*

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

B – Traduisez le passage suivant : de « By employing microbots... » (ligne 17) à « ...back to base. » (ligne 21). *3 pts*

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

II – EXPRESSION 8 POINTS

Répondez en anglais à la question suivante :

Imagine future applications of microbots in everyday life. In what ways could they be useful ? (150 mots)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....