LVE5

Session 2006

BREVET DE TECHNICIEN SUPÉRIEUR

ANGLAIS

¤ GROUPE 14 ¤

Spécialités	*Durée*	*Coefficient*
Chimiste	*2 heures*	*1*
Techniques physiques pour l'industrie et le laboratoire	*2 heures*	*2*

DICTIONNAIRE BILINGUE AUTORISÉ.

L'USAGE DE LA CALCULATRICE EST INTERDIT.

Tout autre matériel est interdit.

Avant de composer, le candidat s'assurera que le sujet comporte bien 3 pages numérotées de 1/3 à 3/3.

I - COMPTE RENDU EN FRANÇAIS *(10 points)*

du texte : "***Road accidents linked to exposure to petrol fumes***" en mettant en évidence les idées essentielles.
(environ 180 mots)

II - ANSWER THE FOLLOWING QUESTIONS IN ENGLISH *(10 points)*

a) Do you think it should be a priority for the European Union to oblige service stations to install vapour recovery systems? Briefly state your reasons.
(60 words) ***(3 points)***

b) In your opinion, are we, in the course of our daily lives, unknowingly exposed to substances and/or forces which are a serious threat to our health? Explain as fully as you can.
(140 words) ***(7 points)***

Road accidents linked to exposure to petrol fumes

Petrol station workers are more than twice as likely to have an accident while driving home as on the way to work. This is the first confirmation of a link between low-level exposure to petrol fumes and road accidents.

Even motorists inhaling petrol fumes at a service-station may be more likely to have a crash, according to Jung-Der-Wang at the National Taiwan University, Taipei, who led the study.

His team looked at the number of road accidents experienced by a group of 20,000 workers at the same company. Nearly half worked on petrol station forecourts and had therefore been exposed to petrol fumes, the rest had office jobs or similar and were the control group. There was no demographic difference between the two groups.

The employees had 626 injury-causing road accidents between 1991 and 2000, with the forecourt workers having 61 per cent more accidents than the office workers. But even more telling was the timing of the extra accidents. There was no statistical difference between their accident rates on the drive to work. But on the way home, the accident rate of the forecourt workers was 2.4 times that of the office workers. The study will appear in a future issue of *Accident Analysis and Prevention*.

Though the study did not monitor the extent of exposure to petrol fumes, the link was clearly demonstrated by a change in accident rates after 1997. That was when Taiwan's Environmental Protection Administration made it a legal requirement for petrol stations to install vapour recovery systems. These suck petrol vapour back into the storage tank during refuelling, cutting vapour release by 90 per cent. After these devices were installed, the accident rate of forecourt workers dropped to the same level as in the general population.

Vapour recovery devices are mandatory in areas of the US with a local pollution problem. And though they are not yet common in Europe, a European Union directive states that all petrol stations should install them as part of its drive to cut emissions of volatile organic compounds. The UK is not planning to implement the directive until at least 2010.

Sean Semple of the University of Aberdeen, UK, has studied the neurotoxic effects of solvents on painters at a naval dockyard in Scotland. "There were a number of stories of how after a 12-hour shift they were involved in accidents," he says. "And there were a number of occasions when they were taken in by the police, because they thought (the painters) were drunk".

But Semple doubts that ordinary motorists are at risk. "I would think short-term exposure to solvents would have to be quite high to have any effect."

Mick Hamer
New Scientist, 16 July 2005