



IB DIPLOMA PROGRAMME
PROGRAMME DU DIPLÔME DU BI
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**INFORMATION TECHNOLOGY IN A GLOBAL SOCIETY
HIGHER LEVEL
PAPER 2**

Tuesday 14 November 2006 (morning)

2 hours

INSTRUCTIONS TO CANDIDATES

- Do not open this examination paper until instructed to do so.
- Answer three questions.

Answer **three** questions.

Area of impact: Business and employment / Science and environment

1. In today's society, the use of Information Technology (IT) to monitor people's activity is becoming commonplace in a wide range of situations. For example, some insurance companies use a device to record information about the way people drive. The device is placed in the car and can sense and record if the driver makes sudden changes in driving behaviour (*e.g.* sudden braking, sudden turns or fast driving). The device is then connected to a computer so that the driver may view the information that has been collected.

Drivers can then decide if they want to send this information to the insurance company so that they can get extra discounts on their car insurance payments.

- (a) Describe **two** sensors that could be used to collect the data needed by the system in the car. **[4 marks]**

- (b) Explain **two** different situations, in which people's actions may be monitored using IT. In your explanation, clearly identify the situation, how IT is used in the situation and the reason for the monitoring. **[6 marks]**

- (c) A Government has decided to make the installation of vehicle monitoring systems compulsory. Discuss the extent to which this impacts on individual freedom. Evaluate your answers. **[10 marks]**

Reference:

"Insurance Co. Try Out Auto Black Boxes." [2 Sept 2004]. abc News. [10 Aug. 2005] <http://abcnews.go.com/Business/Insurance/story?id=93290>.

Area of impact: Health

2. Due to advances in technology, it is now possible for people to seek medical advice using Information Technology (IT), rather than travelling to visit a doctor or hospital.
- (a) Identify **two** ways IT can be used to provide medical advice and information directly to people. **[2 marks]**
 - (b) A person thinks that he may have a disease called “Fibromyalgia”. Describe **two** ways in which IT-based resources may be helpful to this person. **[4 marks]**
 - (c) Describe **two** advantages of an IT medical system compared to direct consultation with a doctor. **[4 marks]**
 - (d) Many people are reluctant to use IT-based advice instead of advice direct from doctors. Discuss the concerns that they may have. Evaluate these concerns. **[10 marks]**

Area of impact: Business and employment

3. Personal Digital Assistants (PDAs), mobile phones (cell phones) and digital cameras are often connected to computer systems in order to transfer data.
- (a) Identify **two** ways in which PDAs can communicate with computer systems. **[2 marks]**
 - (b) The term “convergence” is used to describe instances where different mobile digital devices are combined to produce one new product. Describe **two** new products where the features from different mobile digital devices are combined. **[4 marks]**
 - (c) Some people think that PDAs will eliminate the need for people to use laptop computers. Examine this argument. **[4 marks]**
 - (d) Discuss the advantages of multi function PDA equipment to businesses and their employees. Evaluate these advantages. **[10 marks]**

**Areas of impact: Business and employment / Politics and government /
Arts, entertainment and leisure**

4. Information Technology is transforming the way free-standing sculptures and 3–dimensional figures on buildings can be created or reproduced. Technicians use a laser scanner to make a 3–dimensional copy of the sculpture. The scanned data is used to control a robotic chisel, which shapes a copy of the object.



- (a) Describe **two** ways in which, either intentionally or unintentionally, the computer chiselled copies may be different from the original hand-made sculpture of the lion's head.

[4 marks]



- (b) Government officials in Milan are using this technology to scan hand-carved statues in the cathedral. The US government is using this technology to scan many larger national monuments such as the Statue of Liberty, the Capitol building and Mount Rushmore.

Describe **three** reasons why government officials would want to scan national monuments and statues.

[6 marks]

- (c) Discuss how living artists and architects may be affected if laser scanning and robotic technologies are used extensively in this way. Evaluate your answers.

[10 marks]

Reference:

Tompkins, Joshua. "When Technology Imitates Art." *Circuits*. [22 Jul. 2004.] New York times. [15 Aug. 2005]
<http://www.nytimes.com/2004/07/22/technology/circuits/22mill.html?ex=1124251200&en=ac007925402f0bfa&ei=5070&hp>.