```
22085512
```

International Baccalaureate®
Baccalauréat International
Bachillerato Internacional

INFORMATION TECHNOLOGY IN A GLOBAL SOCIETY
HIGHER LEVEL
PAPER 2

Tuesday 20 May 2008 (morning)

2 hours

INSTRUCTIONS TO CANDIDATES

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

*Answer **two** questions.*
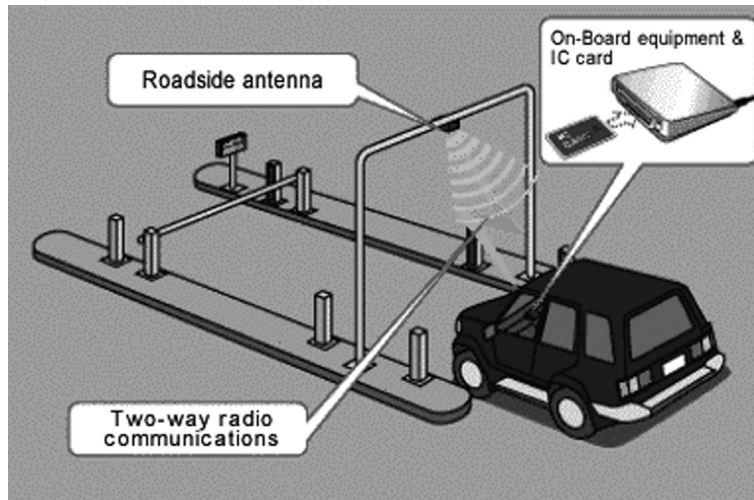
Area of Impact: Business and Employment

1. Telecommuting allows an employee to work from home and communicate with the office using telecommunications technology. Using a home computer employees can access information on the office computer servers.

    (a) Identify **two** collaborative IT tools a worker may use when telecommuting. *[2 marks]*

    (b) Describe how **two** advances in technology have led to an increase in telecommuting. *[4 marks]*

    (c) Distinguish between the use of biometrics and passwords as a means of authenticating an employee who remotely logs on and accesses the company's server. *[4 marks]*

    (d) To what extent are employees' concerns about telecommuting outweighed by the advantages to **both** the employer **and** the employee? *[10 marks]*

Area of Impact: Science and the Environment

2.   Many countries are now using data logging to capture information at automatic toll gates.

Car drivers place a device on the car windscreen that contains a number identifying the driver. The scanner reads this number. This information is matched with records in the driver database and the driver's record is retrieved. The driver is allowed through if the account is in credit.

Since tolls are automatically paid at toll gates in this way, the driver can pass through without stopping the vehicle.

[Source: www.mlit.go.jp/road/ITS/index.html]

(a)   Identify **two** processes involved in data logging.   *[2 marks]*

(b)   Describe **two** other ways that automatic data logging may be used.   *[4 marks]*

(c)   Explain **two** advantages of using automatic data logging to keep records compared with manual data logging.   *[4 marks]*

(d)   Information obtained at automatic tolls may also be used to map traffic information and help drivers travel on the highways. Some cards may also contain customer's information or an identification number to relate the customer to a record in a driver database for later use.

To what extent do the concerns about invasion of drivers' privacy outweigh the advantages of using this system to improve the traffic of cars in a city?   *[10 marks]*

Turn over

Area of Impact: Health / Education

3. A country is considering introducing a nationwide health call centre system. It is intended that the service will give callers round-the-clock access to qualified nurses, who assess symptoms over the phone, using an expert system for clinical decision-making. The nurse then advises the caller whether to go to a pharmacy, see a doctor, attend a local hospital or call an ambulance.

Health call centres are located throughout the country and linked via a WAN. Before the system is introduced, nurses will require training. A simulation will be used for the training.

(a) Define the term WAN. *[2 marks]*

(b) Describe **two** parts of the expert system that could be used to provide this health advice to callers. *[4 marks]*

(c) Explain **two** advantages of using a simulation as a method of training nurses in the use of this expert system for the health call centre. *[4 marks]*

(d) Evaluate the implementation of this nationwide health call centre system for the public **and** the government. *[10 marks]*

Area of Impact: Politics and Government / Arts, Entertainment and Leisure

4. A government will offer families filtering software to protect children and teenagers from Internet predators and pornography. This software blocks access to web sites and chat rooms that may contain offensive or disturbing material. About 2.5 million families are expected to take up the offer of this software, available through ISPs and a dedicated web site.

    (a) Identify **two** services that an ISP can provide to users.   *[2 marks]*

    (b) Describe **two** other methods families can use to protect children from inappropriate material on the Internet.   *[4 marks]*

    (c) Explain **two** ways the filtering software can prevent access to offensive and disturbing material.   *[4 marks]*

    (d) To what extent are the negative effects of government control of the Internet, outweighed by the benefits to families of using the free filtering software?   *[10 marks]*