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**INFORMATION TECHNOLOGY IN A GLOBAL SOCIETY
STANDARD LEVEL
PAPER 2**

Tuesday 22 November 2005 (morning)

2 hours

INSTRUCTIONS TO CANDIDATES

- Do not open this examination paper until instructed to do so.
- Section A: answer all parts of the question.
- Section B: answer two questions.

SECTION A

*Answer **all** parts of the question.*

Area of Impact: Business and Employment

1. British Telecom (BT), the United Kingdom's (UK) largest telecommunications company uses call centres to answer customer queries about account details, call charges and general business practices. In 2003, BT decided to use businesses in India, instead of in the UK, to handle their services. The call centres in India recruit local staff.

    (a) Identify **two** developments in recent years that make India, and other developing countries, suitable locations for BT call centres.   *[2 marks]*

    (b) Describe **two** technical issues that need to be addressed to allow the call centres in India to access the necessary BT files.   *[4 marks]*

    (c) Describe **two** benefits to developing countries of establishing these overseas call centres.   *[4 marks]*

    (d) Discuss **two** possible concerns that residents of the UK may have about the trend of establishing overseas call centres. Evaluate your arguments.   *[10 marks]*

SECTION B

*Answer **two** questions.*

Area of Impact: Education

2.   When students finish taking an IB examination paper, it is sent by post to the home of an examiner. The examiner marks the examination paper and returns it by post together with the mark to the IB assessment centre in Cardiff, Wales.

A different examination organization recently began to implement an online marking process. Students take examinations in the traditional way by writing on the examination paper. The papers are then scanned into the organization's main computer system. Examiners access the papers electronically and mark online. The marks and the marked paper are then saved directly on the organization's computer system.

(a)   Identify **two** technical precautions that would need to be implemented to ensure that scanned versions of the examination papers are not altered and the marks are secure.   *[2 marks]*

(b)   Describe **two** administrative advantages for the examination organization of marking examinations online.   *[4 marks]*

(c)   Describe **two** advantages to students of having their papers marked online.   *[4 marks]*

(d)   Discuss **two** social issues, which need to be considered before an examination organization can implement an online marking system. Evaluate your arguments.   *[10 marks]*

Area of Impact: Health

3. Countries are increasingly establishing nationwide systems, which store medical information on patients. Each individual is required to carry a smart card at all times for identification and medical purposes. The smart card contains both vital personal medical information and also gives authorized access to more detailed web-based personal medical files.

    (a) Identify **two** distinct types of medical information that could be stored about an individual on a smart card. *[2 marks]*

    (b) Describe **two** advantages to an individual cardholder of having a smart card containing medical information. *[4 marks]*

    (c) Describe **two** benefits for doctors or medical institutions from having a national system for accessing and storing medical records. *[4 marks]*

    (d) Discuss **two** ethical policies, which must be implemented regarding the storage of patients' medical information. Evaluate your arguments. *[10 marks]*
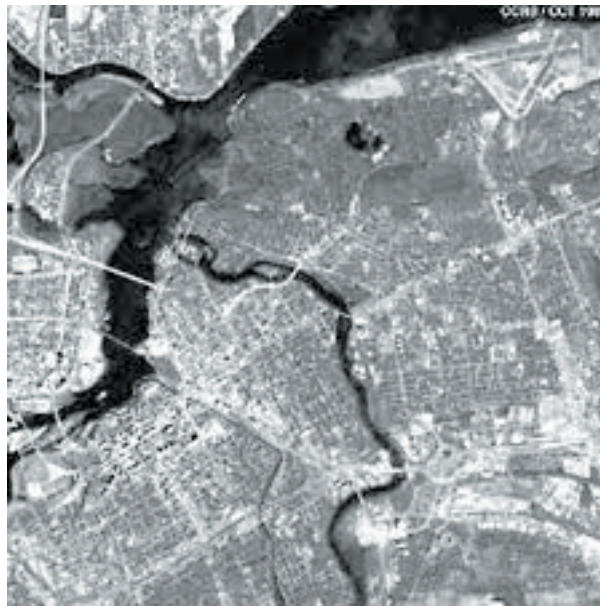
Area of Impact: Arts, Entertainment and Leisure

4. Researchers claim that on-demand services through the Internet are the future of the home entertainment industry. It is predicted that CD-ROMs, DVDs and similar physical forms of digital media will become obsolete. The home entertainment centre of the future will consist of a network, plus hardware and software capable of accessing digital entertainment such as games, music, films and television.

   (a) Describe **two** problems involving technical standards, which must be overcome in order for effective on-demand services to be provided to home users. *[4 marks]*

   (b) Describe **three** advantages for consumers of distributing video films through on-demand services on the Internet instead of on DVDs. *[6 marks]*

   (c) Discuss **two** strategies, which could be adopted by entertainment industries to try to eliminate the piracy of digital entertainment files (e.g. music, film and television programs). Evaluate your arguments. *[10 marks]*

Area of Impact: Science and the Environment

5. Remote sensing is the collection of physical data from a distance. Satellite remote sensing uses satellites orbiting around the earth to collect digital data about features on the Earth's surface. This data can be used to construct images of the earth's surface showing geographical features and physical objects.

The Canada Centre for Remote Sensing (CCRS) is Canada's major satellite remote sensing organization. It is responsible for processing, archiving and distributing data that has been remotely sensed from Earth observation satellites.

source:[Image of a city and river constructed from remotely sensed data Canada Center for Remote Sensing]
http://www.ccrs.nrcan.gc.ca/ccrs/learn/tutorials/fundam/chapter1/chapter1_7_e.html

(a) Outline how remotely sensed digital data from geographical features and objects on the earth's surface can be used to construct photographs. *[2 marks]*

(b) Describe **two** benefits of using data collected from satellites compared with data collected from ground level. *[4 marks]*

(c) Describe **two** ways that data collected from satellites could benefit the public. *[4 marks]*

(d) Discuss **two** ethical concerns that the public may have about the collection of data by remote sensing and its use to produce satellite images. Evaluate your arguments. *[10 marks]*

Area of Impact: Politics and Government

6.   Some governments tightly control all of the Internet Service Providers (ISPs) in their countries. They may place restrictions on the access of foreign websites and search engines. These governments then encourage the development of their own equivalent web services.

(a)   Explain how governments are able to monitor the Internet activities of their citizens.   *[2 marks]*

(b)   Describe **two** reasons why such governments would want to limit the access to foreign search engines.   *[4 marks]*

(c)   Describe **two** methods that governments can use to control online information available to the national population.   *[4 marks]*

(d)   Discuss **two** social / ethical outcomes, which could result from a large number of the residents of the country having access to the Internet. Evaluate your arguments.   *[10 marks]*