

**BCS THE CHARTERED INSTITUTE FOR IT**

**BCS HIGHER EDUCATION QUALIFICATIONS  
BCS Level 6 Professional Graduate Diploma in IT**

**IT and the Environment**

Friday 13<sup>th</sup> November 2020 – Morning

Answer **any** THREE questions out of FIVE. All questions carry equal marks.

Time: THREE hours

**Answer any Section A questions you attempt in Answer Book A**

**Answer any Section B questions you attempt in Answer Book B**

The marks given in brackets are **indicative** of the weight given to each part of the question.

Calculators are <b>NOT</b> allowed in this examination.
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**Section A**  
**Answer Section A questions in Answer Book A**

**A1.**

This question is about Environmental Impact Analysis and Legislative and Regulatory Provisions.

A large global organisation assembles computing equipment. As part of a large environmental management policy, Senior Management has decided that the organisation will only source components for its products which have the “lowest environmental impact”.

- a) Describe **THREE** measures of “environmental impact” which the organisation could use in the selection of components for its products.

**(15 marks)**

- b) With reference to **ONE** of these measures, write a report to Senior Management describing how the company could use an international standard to manage this policy.

**(10 marks)**

**A2.**

This question is about Remote Sensing.

A national government is increasingly concerned about the risk of uncontained forest fires causing a threat to human life in rapidly growing suburban populations.

- a) Discuss **TWO** remote sensing techniques which could be used in gathering data about potential fire risk in these areas. Explain any assumptions that you make.

**(16 marks)**

- b) For **ONE** of these techniques, write a report to indicate how practical use could be made of previously collected data once a new forest fire had been detected.

**(9 marks)**

**Section B**  
**Answer Section B questions in Answer Book B**

**B3.**

This question is about Legislative and Regulatory Provisions.

A company provides online education, where students enrol, study and are assessed at home.

Its current data centre is running at 95% capacity and it will be at 100% capacity within one year.

There is no opportunity to expand the data centre at the current location. The company is considering these alternatives:

- To move the data centre to a new out of town location.
- To build a second data centre out of town, sharing the work with the current data centre.
- To outsource the data centre provision to a cloud service provider.

a) Give **ONE** advantage and **ONE** disadvantage of each of these three alternatives.  
**(15 marks)**

b) The company is considering a contract with a cloud service provider with a worldwide server base. What legal and regulatory considerations should the company be aware of?  
**(10 marks)**

**B4.**

This question is about IT in the service of power generation and energy conservation. Smart meters provide energy consumers with a means of monitoring and controlling their energy use. A smart electricity meter will show the energy use in real time, so that the user can see where energy is being used, so they can switch off those things which are not needed.

A UK advertising campaign to promote smart meters claims that “if every home in the country installed a smart meter, the CO<sub>2</sub> saved would be the same as taking 600,000 cars off the road by 2030.” (Source: Smart Energy GB<sup>1</sup>, 2018).

a) Explain how this claim is calculated.  
**(5 marks)**

b) What assumptions are made about consumers’ behaviour, energy generation and vehicle technology which are likely to affect the accuracy of this claim?  
**(10 marks)**

c) Describe the changes necessary to the electricity supply network in order to support smart meters.  
**(10 marks)**  
**[Turn Over]**

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<sup>1</sup> <https://www.smartenergygb.org/en/-/media/SmartEnergy/website-terms-and-conditions/ad-claims/Cars.ashx>, Accessed July 2020

**B5.**

This question is about Environmental Impact Analysis and The Environmental Impact of Information Systems.

A finance company owns a large office building in the downtown area of a capital city. The company's 700 staff travel to and from the office each day: some use public transport; some use private car; some cycle and some walk. Each staff member has a desk with a PC for work use.

The company's management has developed a plan that will provide all staff with a new laptop computer and internet access at their home, accessing applications and data stored in a local data centre. In return, the staff member will work from home for at least three full working days each week. The company will then sell the existing office building, and construct a smaller, more energy efficient building with space for 250 staff members close to the capital city's main railway, tram and bus station.

- a) Discuss **THREE** positive and **THREE** negative environmental and social impacts likely to arise from this plan.

**(15 marks)**

- b) Explain the options for the company in relation to the 700 desktop PCs which they currently possess.

**(10 marks)**

**END OF EXAMINATION**