

BCS THE CHARTERED INSTITUTE FOR IT

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

IT AND THE ENVIRONMENT

Friday 2nd October 2015 – Afternoon

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 NOT allowed in this examination
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Section A

Answer Section A questions in Answer Book A

- A1. The manufacturing division of the UK company you work for routinely outsources some elements of its hardware production to an organisation in another country.

As part of an audit of production methods, you discover that the outsourcing company is using a solvent in production which, although legal in its country, is banned in the UK.

A substitute solvent is available which is both more effective and has a much lower environmental impact – but costs substantially more than the one currently in use.

- a) Write a report to the Board of your company discussing THREE reasons why the outsourcing company should be required to stop using the solvent they currently use. **(12 marks)**
- b) In light of your report, the Board wants to review the quality processes of the company's suppliers. Discuss THREE areas that the company should focus on as part of a process improvement policy which aims to reduce environmental impact. **(13 marks)**

- A2. You are the IT manager for a company which employs fifty administrative staff in a single, modern office building.

Each member of staff has access to a desktop computer and laser printer. All the desktop computers are networked to a number of servers.

The company is concerned that energy consumption by the IT systems may be higher than it needs to be. You have been asked to determine whether energy consumption can be reduced.

- a) Describe THREE areas of energy consumption by the IT systems that you would investigate. State any assumptions that you make. **(12 marks)**

Turn over]

- b) For ONE of these areas of energy consumption, explain in detail what you could do to reduce consumption. Discuss any compromises which this might entail. State any assumptions that you make. **(13 marks)**

Section B
Answer Section B questions in Answer Book B

- B3. Early in 2013, the head of Yahoo banned employees from working at home, requiring them to travel to work in the company's nearest office during working hours.
- a) Which factors should be considered in deciding whether such a change is beneficial? Your answer should include work, financial, environmental and personal considerations. **(15 Marks)**
- b) Discuss TWO technological developments in the last 10 years that have made working at home a possible option for many people. **(10 Marks)**
- B4. Your company has been invited to bid for a very large contract to provide the IT support for a major international cultural event. The company does not have the IT resources available to provide this support. You have been asked to provide a report comparing the benefits and drawbacks of buying the required equipment with those of using a cloud provider.
- a) Discuss THREE advantages of the option to buy the equipment. **(9 Marks)**
- b) Discuss THREE advantages of the option to use a cloud provider. **(9 Marks)**
- c) Your company decides to select the cloud solution. What effect will this have on the environmental impact? **(7 Marks)**
- B5. (a) Your city plans to introduce a traffic management system to its road system. The major aim of this system is to control the levels of air pollution in different parts of the city by controlling the number of cars and buses using different routes. Therefore there is a requirement to monitor air quality and control traffic signals.
- (i) Explain the equipment required to support this activity. **(7 marks)**
- (ii) Could this equipment be used to provide long-term monitoring of air pollution (e.g. over a 2 – 5 year period)? Discuss other monitoring data which would be needed to give a fuller picture of air quality within the city and its effect on citizens. **(7 marks)**
- (b) The city also proposes to add to its current coal and nuclear power supplies by developing tidal and wind electric energy generation systems.
- (i) Explain how smart grid technology can allow these new forms of generation to be integrated into the power supply. **(6 marks)**
- (ii) Describe the use of smart grid technology in balancing demand for electricity. **(5 marks)**