Cambridge International AS & A Level

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use an HB pencil for any diagrams, graphs or rough working.
- Calculators must **not** be used in this paper.

INFORMATION

- The total mark for this paper is 90.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **16** pages. Blank pages are indicated.

1   (a) Describe how computer-controlled 3D printing creates objects.

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(b) Describe, with examples, how 3D printing can be used in medicine by surgeons when treating patients.

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2 Ultra-high definition television is available from video streaming services over the internet.

(a) Describe the features of ultra-high definition television systems that improve the viewing experience.

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(b) Analyse how the different types of transmission media used by internet service providers affect the availability of ultra-high definition television to their customers.

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3 Analyse the role of social networks in changing social patterns among young people.

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4 A company is concerned that their personnel files may be viewed and used by unauthorised people. The company uses access rights (permissions) to protect their files when they are stored on their network and encryption when the files are sent to other companies by email.

(a) Explain how the use of different access rights (permissions) applied to files can be used to control access to files.

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(b) Describe the advantages of the different encryption methods for protecting files when sending them over public telecommunications systems.

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5   Describe how compression is used when storing bitmap image files.

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6 Telecommunication companies are using fibre optic cables to supply internet services direct to people's homes because fibre optic cables are cheaper than copper cables.

(a) Explain the reasons, other than cost, why companies prefer to use fibre optic cabling.

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(b) Describe **three** disadvantages of using fibre optic cables.

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7   When creating company documents for use in mail merge, staff must try to ensure that the documents are accurate and free of errors.

Describe the methods that could be used to eliminate errors when creating mail merge documents.

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8 Nigel is creating a website which uses JavaScript. He uses scripts to manipulate text held in HTML elements so that it can be displayed on his pages.

(a) Explain what is meant by an 'HTML element'.

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Nigel uses this code to manipulate the text on his page. The line numbers are shown only for reference purposes.

```
1
2   <html>
3   <body>
4
5   <h2>Nigel uses this JavaScript to change HTML</h2>
6
7   <p id="a1">Nigel's original text was here</p>
8
9   <script>
10  document.getElementById("a1").innerHTML = "Nigel changed this!";
11  </script>
12
13  <p>The paragraph above was changed by Nigel's script.</p>
14
15  </body>
16  </html>
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(b) Explain, in detail, how this JavaScript would change what is displayed on the web page.

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9   Describe the security issues that may arise when computers are networked.

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10 An internet forum is a discussion site which can be used to collect data from people. Messages are posted on topics in threads. Data from the postings can be analysed and used in research.

By weighing up the advantages and disadvantages, evaluate the use of a forum to collect information from patients for use in medical research.

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11 Animators use several techniques when creating their animations.

Compare and contrast the use of tweening and morphing in animation.

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12 List **five** principles that should be included in a data protection act.

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