INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use pencil or gel pen. Do not use correction fluid.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer all questions.

Write your answers in the spaces provided in this booklet.

If you run out of space, use the continuation pages at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

Quality of written communication will be assessed in question 10.
1. **Tick (✓) the correct boxes below to show which of the following are *input only* devices.** [5]

<table>
<thead>
<tr>
<th>Device</th>
<th>Tick (✓)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphics tablet</td>
<td>1</td>
</tr>
<tr>
<td>Colour laser printer</td>
<td>2</td>
</tr>
<tr>
<td>Blu-ray drive</td>
<td>3</td>
</tr>
<tr>
<td>Microphone</td>
<td>4</td>
</tr>
<tr>
<td>Speakers</td>
<td>5</td>
</tr>
<tr>
<td>Monitor</td>
<td>6</td>
</tr>
<tr>
<td>Keyboard</td>
<td>7</td>
</tr>
<tr>
<td>Flash memory drive</td>
<td>8</td>
</tr>
<tr>
<td>Mouse</td>
<td>9</td>
</tr>
<tr>
<td>Webcam</td>
<td>10</td>
</tr>
</tbody>
</table>
2. Multimedia software can be used to create websites for organisations wishing to sell products online.

(a) (i) Describe the use of keyword searches on a webpage. [1]

(ii) Name four features of multimedia software, and for each feature give a different example of how it could be used on an organisation’s online shopping website. [8]

Multimedia Feature 1
Name: ...............................................................................................................................................................................
Example use: ...............................................................................................................................................................
Give one disadvantage of using features of multimedia software on a website. [1]
3. (a) Name the types of network topologies shown below. [2]

Topology: ..................................................  
Topology: ..................................................

(b) Complete the following sentences about network devices, using only the words given below.

<table>
<thead>
<tr>
<th>LANs</th>
<th>Switch</th>
<th>Bridge</th>
<th>Packet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gateway</td>
<td>Transponder</td>
<td>WANs</td>
<td>URL</td>
</tr>
</tbody>
</table>

(i) A .................................................. joins together two networks that use different base protocols. [1]

(ii) A .................................................. analyses each ........................................ of data and then sends it to the computer it was intended for. [2]

(iii) A device that connects separate ........................................ together to form one large local area network is called a ........................................ . [2]
(c) State what is meant by the following network terms:

Intranet [1]

Extranet [1]
4. (a) **Tick (✓) the correct boxes below to show which statement best describes the digital imaging tools named.** [3]

<table>
<thead>
<tr>
<th>Statement</th>
<th>Composite patterning</th>
<th>Gradient</th>
<th>Layering</th>
</tr>
</thead>
<tbody>
<tr>
<td>A gradual blending together of two or more fill colours</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Imaging effects or images are applied and placed over or under an image</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>A graphic that repeats and is used to fill shapes and backgrounds</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>

(b) State what is meant by the term *bitmap graphic.* [1]

(c) Describe what is meant by the term *vector graphic.* [2]

(d) Give **two** benefits of using vector graphics over bitmap graphics. [2]

**Benefit 1:** ....................................................................................................................................................................

................................................................................................................................................................................................

................................................................................................................................................................................................

**Benefit 2:** ....................................................................................................................................................................

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................................................................................................................................................................................................
Graphics can be saved in a variety of different file formats.

Name two different types of graphic file format and give a different advantage and disadvantage for each file format. [2 x 3]

**Graphic file format 1**

**Name:** .................................................................

**Advantage:** .................................................................................................................................

.................................................................................................................................

.................................................................................................................................

.................................................................................................................................

.................................................................................................................................

**Disadvantage:** ............................................................................................................................

.................................................................................................................................

.................................................................................................................................

.................................................................................................................................

.................................................................................................................................

**Graphic file format 2**

**Name:** .................................................................

**Advantage:** .................................................................................................................................

.................................................................................................................................

.................................................................................................................................

.................................................................................................................................

.................................................................................................................................

**Disadvantage:** ............................................................................................................................

.................................................................................................................................

.................................................................................................................................

.................................................................................................................................

.................................................................................................................................
5. Human-computer interfaces (HCI) are used in ICT.

(a) Name the type of HCI shown in the image below. [1]

HCI: .................................................................

(b) Give three features of the HCI named in part (a). [3]

Feature 1: ....................................................................................................................................................................................
....................................................................................................................................................................................
....................................................................................................................................................................................

Feature 2: ....................................................................................................................................................................................
....................................................................................................................................................................................
....................................................................................................................................................................................

Feature 3: ....................................................................................................................................................................................
....................................................................................................................................................................................
....................................................................................................................................................................................
6. (a) Describe what is meant by the term *operating system*. [2]

(b) Give **three** functions of an operating system. [3]

<table>
<thead>
<tr>
<th>Function 1:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Function 2:</td>
<td></td>
</tr>
<tr>
<td>Function 3:</td>
<td></td>
</tr>
</tbody>
</table>

(c) **Tick** (✓) the correct boxes below to show the most suitable processing method for each of the following examples. [3]

<table>
<thead>
<tr>
<th>Example</th>
<th>Batch processing</th>
<th>Real-time control processing</th>
<th>Real-time transaction processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto-pilot on an aeroplane</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Purchasing items online</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Producing monthly bank statements to send out to customers</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>
7. An organisation processes the timesheets of workers at the end of each month.

(a) State the name given to this application.

(b) This application uses a master file and a transaction file.

Design a suitable data structure for these two files by completing the two tables below.

Your answer should include:

- one common item of data that would appear in both files.
- two additional items of data that could be included in each of the files.

<table>
<thead>
<tr>
<th>Master file</th>
<th>Transaction file</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common data item:</td>
<td>Common data item:</td>
</tr>
<tr>
<td>Field 1:</td>
<td>Field 1:</td>
</tr>
<tr>
<td>Field 2:</td>
<td>Field 2:</td>
</tr>
</tbody>
</table>
8. Bionics and robotics are used extensively by some organisations.

(a) State what is meant by the term **bionics**. [1]

(b) Give **two** advantages of using robotics. [2]

   Advantage 1: ..........................................................................................................................................................................

   Advantage 2: ..........................................................................................................................................................................

(c) Give **two** disadvantages of using robotics. [2]

   Disadvantage 1: ....................................................................................................................................................................

   Disadvantage 2: ....................................................................................................................................................................

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(d) State what is meant by the term artificial intelligence (AI).

9. Organisations must comply with different laws and regulations.

(a) Tick (✓) the correct box below to show which of the following statements applies to the Acts listed.

<table>
<thead>
<tr>
<th>Computer Act</th>
<th>Electronic Communications Act</th>
<th>Data Protection Act</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital signatures are legally binding in the same way as handwritten signatures</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Unauthorised modification of computer data is illegal</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Health and Safety legislation states that employers should take certain actions to protect the health of workers that use computers, such as:

- Providing screens that tilt
- Providing anti-glare screen filters

Give two other preventative measures employers should take to protect their workers that use computers.

**Preventative measure 1:**

**Preventative measure 2:**
10. Name and describe in detail four different types of animation techniques. [12]

Remember that the quality of your written communication will be assessed in this question.
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PLEASE DO NOT WRITE ON THIS PAGE