



General Certificate of Secondary Education
2019

Centre Number

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Candidate Number

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Digital Technology

Unit 2

Digital Authoring Concepts

MV18

[GDG21]

THURSDAY 16 MAY, AFTERNOON

Time

1 hour 30 minutes, plus your additional time allowance.

Instructions to Candidates

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

You must answer the questions in the spaces provided.

Do not write on blank pages.

Complete in black ink only.

Answer **all twelve** questions.

Information for Candidates

The total mark for this paper is 120.

Figures in brackets printed at the end of each question indicate the marks awarded to each question or part question.

Quality of written communication will be assessed in

Question **6(h)**.

An insert is provided for use with Question **10**.

For Question 1 insert the appropriate letter in the space provided.

1 (a) Select the statement which correctly describes what is meant by a data dictionary. [1 mark]

- A** A table containing details of file types used in the database
- B** A table listing the field headings used in the database
- C** A table listing the objects created as part of the database
- D** A table containing data to be input into the database

Answer _____

(b) Select the list of file formats suitable for distributing video files across the internet. [1 mark]

- A** mp4, png, avi, fla
- B** mp3, mp4, mov, avi
- C** avi, mp4, fla, mov
- D** mov, mp3, avi, flv

Answer _____

(c) Select the answer below which correctly explains the term “merge field” as used during a mail merge process.
[1 mark]

- A** The data in a database table to be inserted into a mail merge letter
- B** A place-holder in a merged document which highlights where data was inserted
- C** The field names in a word processed document which show where data is to be inserted
- D** Data items stored in a merged word processed document following a mail merge

Answer _____

(d) Which statement correctly defines the term entity?
[1 mark]

- A** A heading given to an item of data in a database
- B** A single person, object or transaction represented in a database
- C** A control button represented in a menu in a database
- D** A name used to save a new report in a database

Answer _____

(e) Which statement correctly describes what is meant by the term macro? [1 mark]

- A** A data-type assigned to text-based data types in a database
- B** A small program used to automate repetitive tasks in an application
- C** An icon used to launch the script associated with an interactive web page
- D** A design tool used to edit the properties of a multimedia element

Answer _____

(f) Select the option which correctly defines the term template. [1 mark]

- A** A set of step-by-step instructions which take a developer through the completion of a task
- B** A piece of software which cannot be edited
- C** A predefined layout of a document which can be edited
- D** A software application used to create multimedia applications

Answer _____

(g) Select the option below which contains the correct opening and closing tags used to embolden text in a HTML document. [1 mark]

- A**
- B** <bold> <bold/>
- C**
- D** <bold> </bold>

Answer _____

(h) Select the statement which correctly describes one way the <head> tag can be used in HTML documents. [1 mark]

- A** used to display the webpage title in the browser
- B** contains the location of multimedia sources used in the document
- C** displays the pathway to the index page
- D** holds details of additional styles used in the document

Answer _____

(i) The letters ERD stand for [1 mark]

A Extreme Relational Diagram

B Entity Report Dictionary

C Extreme Report Dictionary

D Entity Relationship Diagram

Answer _____

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(Questions continue overleaf)

2 Dominic owns a hair salon and stores data in a database about his clients and appointments. The salon currently stores appointment details using a table. Part of the table is shown opposite.

(a) Explain the term data redundancy by making reference to the table opposite. [2 marks]

(b) (i) Define the term data integrity. [1 mark]

(ii) Using the table opposite, give an example of a data entry error made when entering a customer's name. [1 mark]

TBL Appointments

CustomerNo	Name	Telephone No	Mobile No	Date	Time	Type	StylistName
WAL001	Bill Walker	02890234578	07791123451	21/03/2019	14.45	Cut	Jean
MAT001	Mary Waters	02897451232	07894561258	22/03/2019	15.45	Perm	Bart
DUD001	Jamie Duddy	02894567894	07884512921	22/03/2019	16.45	Cut	Jean
WAL001	Bill Walker	02890234578	07791123459	28/03/2019	14.45	Wash	Jean
DUD001	Jamie Duddy	02894567894	07884512911	04/04/2019	12.15	Wash	Bart
DUD001	James Duddy	02894567894	07884512965	16/04/2019	13.15	Colour	Mary
WAL001	Bill Walker	02890234578	07791123458	24/04/2019	10.15	Cut	Jean

- (c) Dominic wants to produce a report listing all appointments between (and including) the 7th May 2019 and 11th May 2019.

Place a tick (✓) against the correct criteria he should use. [1 mark]

Criteria	Tick (✓)
$\leq 7/5/2019$ and $\geq 11/5/2019$	
7/5/2019 and 11/5/2019	
$\geq 7/5/2019$ and $\leq 11/5/2019$	

- (d) What do the letters SQL stand for? [1 mark]
-

- (e) Dominic wants to search TBLAppointments to find all of Bart's appointments. Complete the SQL statement below to allow Dominic to return all of Bart's appointments from the table previously shown. [1 mark for each]

SELECT *

FROM _____

WHERE _____ ="Bart";

Dominic has used a database report to create the customer receipt shown below.

Customer Receipt		HAIRTEK			
Telephone 028 9023 2301		20 High Street Belfast BT1 1DH			
Name	Bill Walker				
CustomerNo	WAL001				
Date	Time	StylistName	Type	Cost	
21/03/2019	10.15	Jean	Wash	£10.00	
21/03/2019	10.35	Jean	Cut	£15.00	
			Sum	£25.00	
			VAT	£4.38	
			Grand Total	£29.38	
13 April 2018			Page 1 of 1		

Grand Total is a field which is calculated on the report.

(f) Describe how Grand Total is calculated in the report.
[2 marks]

- 3 (a)** Describe **two** advantages of prototyping when used to develop an application. [4 marks]

Advantage 1

Advantage 2

- (b)** Describe how the end user is involved when developing a prototype for an application. [2 marks]

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(Questions continue overleaf)

4 Testing is an important part of developing a new system.

(a) Explain the following approaches to testing.

[2 marks for each]

(i) Black Box

(ii) White Box

(b) Adam is writing a test plan for the following Treatment table. Treatments last no longer than four hours.

TreatmentID ▼	TreatmentType ▼	Duration ▼	Cost ▼
TRT01	Full Colour	00:60	£23.75
TRT02	Up Style	00:45	£28.50
TRT03	Full Colour	01:30	£42.75
TRT04	Shampoo & Set	00:30	£9.98
TRT05	Cut & Blowdry	00:60	£26.60
TRT06	Wash & Blowdry	00:30	£30.40

- (i) Complete the grid below to include test data which will produce the expected outcomes when testing the duration field. [1 mark for each test data]

Test number	Item to be tested	Reason for test	Test data	Expected outcome
1	Duration field	Valid data		Value should be accepted.
2	Duration field	Invalid data		Value should not be accepted.
3	Duration field	Null data		The user will be prompted to enter a duration for the appointment.

- (ii) In the table below tick (✓) the statement which is correct about system testing. [1 mark]

Statement	Tick (✓)
System testing is carried out as the individual components are being developed.	
System testing is carried out when all the individual components have been developed.	

(c) When a new system is developed both alpha and beta testing can be carried out.

(i) Place a tick (✓) beside **two** statements which are true in relation to beta testing. [2 marks]

Statement	Tick (✓)
Carried out using free-trial versions of the application	
Is the final stage in testing the application	
Simulates the real world environment the application is to be used in	
Is carried out by the end user	

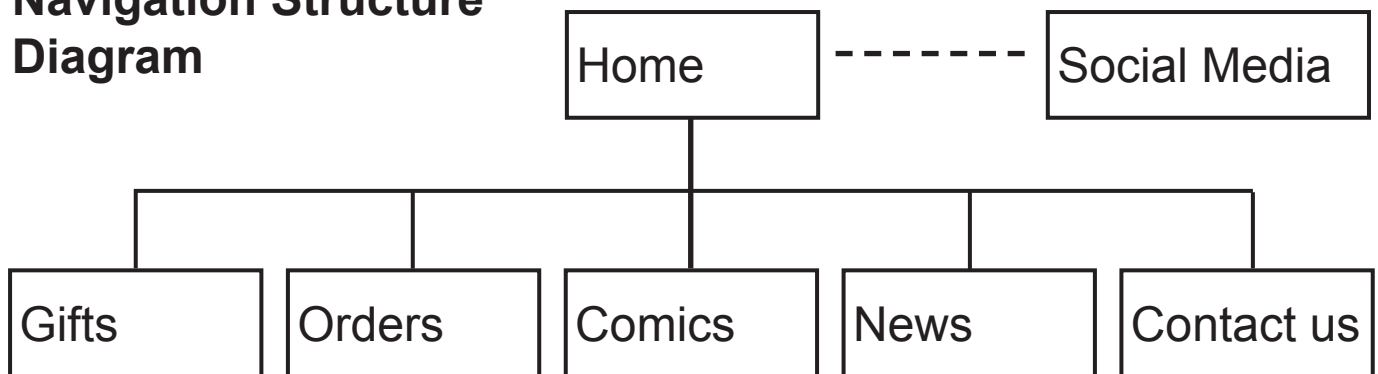
(ii) Explain how A/B testing is used to test applications. [2 marks]

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(Questions continue overleaf)

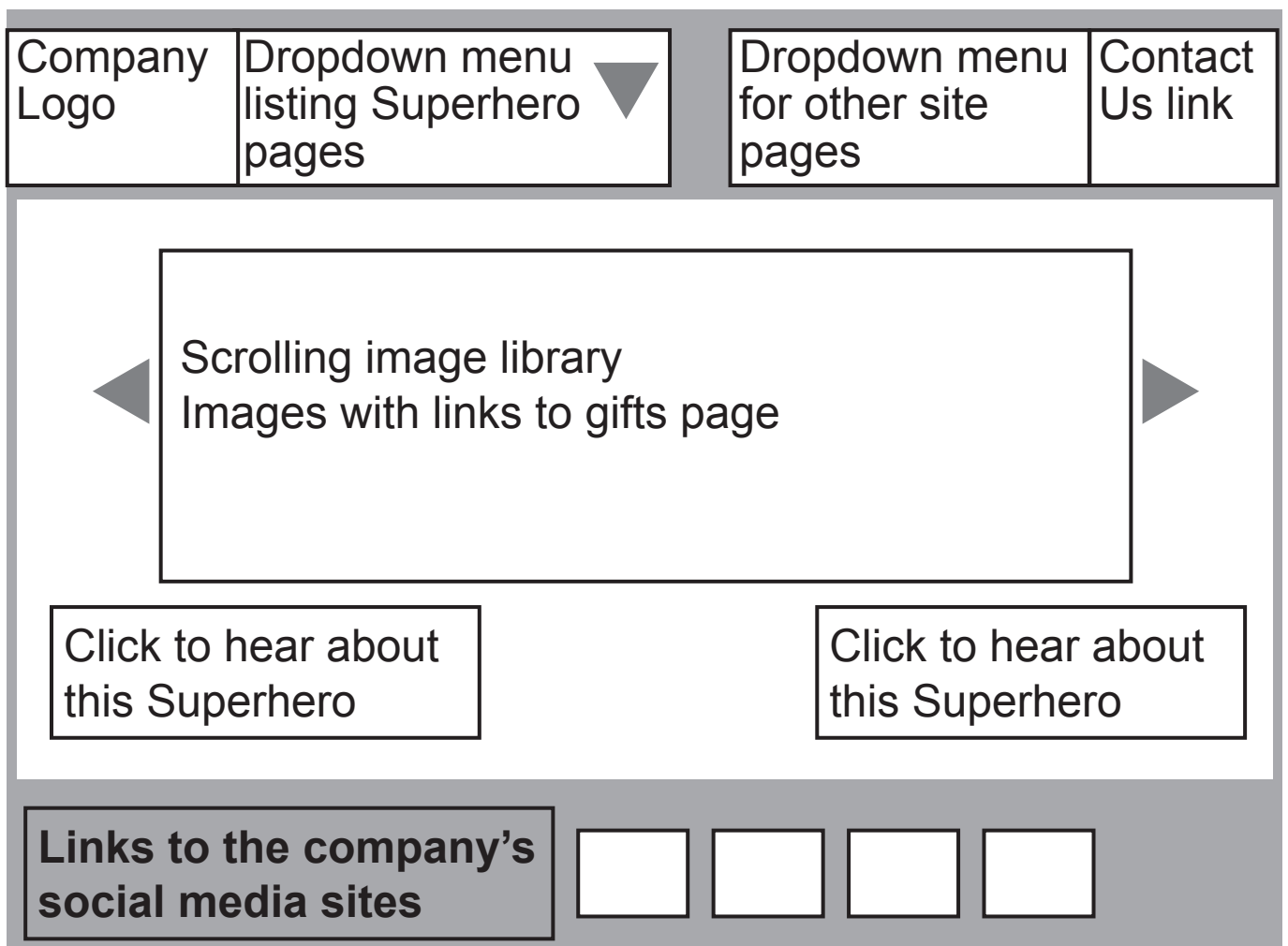
- 5 Alice has been asked to design a multimedia shopping application for a small business (SuperheroGifts4U). The website will sell comics and gifts based around superheroes.

A navigation structure diagram for the application and wireframe for the home page are outlined below.

Navigation Structure Diagram



Wireframe for Home Page

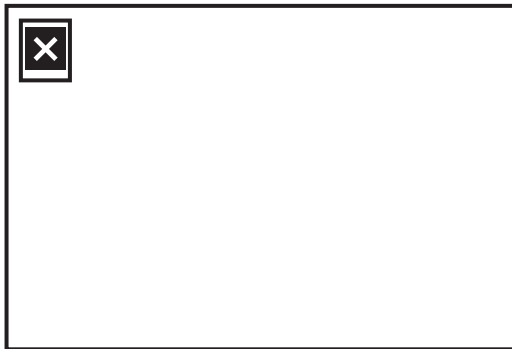


(a) Describe how Alice would effectively test each of the following elements of this application:

(i) Animated image gallery [2 marks]

(ii) Links to social media websites [2 marks]

(b) Alice creates and tests the home page. The following appears instead of the company logo.



Give **two** possible reasons why this might happen.
[2 marks]

1. _____
2. _____

(c) A form is created to help users secure payments online when buying items.

Scripted elements are used to validate the expiry date on the form.

Expiry Date: / /

Identify **two** ways scripted elements can be integrated into a HTML document. [2 marks]

1. _____
2. _____

(d) Identify **two** additional interactive features Alice could add to the application to improve the shopping experience for customers. [2 marks]

1. _____
2. _____

6 Smartphone technologies employ a range of human-computer interfaces including GUIs, natural language interfaces and touch screen technologies.

(a) Identify **one** feature of a GUI which can make an application easier to use for:

An inexperienced user [1 mark]

An experienced user [1 mark]

(b) Identify **two** ways an end user can input instructions into a device with a natural language interface.

[1 mark for each]

1. _____

2. _____

(c) Natural language interfaces have many applications in mobile telecommunication devices.

State **two** advantages and **two** disadvantages of using a natural language interface.

Advantages [2 marks]

1. _____

2. _____

Disadvantages [2 marks]

1. _____

2. _____

(d) Identify **two** disadvantages of using a touchscreen as an input device for mobile telecommunication devices. [2 marks]

1. _____

2. _____

Some gaming applications now use motion tracking interfaces to support user input.

- (e) Use the words listed below to complete the sentences on motion tracking interfaces. [4 marks]
(Not all words will be used)

infra-red
sensors
movement
digital signals
audio signals

Motion tracking interfaces convert _____ into _____.

Some applications have motion tracking systems built into their interfaces.

No markers or _____ are required. These systems use _____ cameras to detect movement.

- (f) List **two** ways in which the use of motion tracking technology has helped make gaming more accessible for all age ranges. [2 marks]

1. _____

2. _____

7 (a) Alexander is developing a computer game. He wants the game to be interactive and provide game players with feedback.

(i) Identify **two** types of feedback he could include in his game. [2 marks]

1. _____

2. _____

(ii) Identify **two** advantages of including interactivity and multimedia in a computer game. [2 marks]

1. _____

2. _____

(iii) Identify **two** disadvantages of including interactivity and multimedia in a computer game. [2 marks]

1. _____

2. _____

Before Alexander can develop the game, he must identify the target audience.

(b) What does the term target audience mean? [1 mark]

8 Social media applications include many interactive and multimedia features.

(a) Identify **two** interactive and multimedia features used to make the use of social media applications more enjoyable for the end user. [2 marks]

1. _____

2. _____

(b) Identify **two** ways the use of interactive multimedia in social media applications can cause problems for the end user. [2 marks]

1. _____

2. _____

9 Sam is creating a website for his Digital Technology controlled assessment.

(a) Explain how Sam would use hypertext in the creation of his website. [2 marks]

(b) Identify **one** advantage of using folders to organise the content of Sam's website when he is creating it. [1 mark]

(c) List **three** advantages of using a multimedia authoring application to create a HTML application. [3 marks]

1. _____

2. _____

3. _____

10 HTML is the language used to allow web page creation.

(a) List **two** advantages of using HTML to create a web page. [2 marks]

1. _____
2. _____

(b) State the function of the following HTML tags. [3 marks]

(i) `<title> </title>`

(ii) ` `

(iii) `<p> </p>`

The HTML shown on the insert provided is taken from a code editor and was used to create a web page about penguins.

(c) Use the HTML code shown in the insert to answer the following questions.

(i) Examine the code and state whether the statements in the table below are **True** or **False**. [4 marks]

Statement	True / False
The web page contains a table with 2 rows and 5 columns	
The table will fill the full width of the browser window it is displayed in	
The heading "Facts about Penguins" is displayed in the largest heading style	
The website contains an ordered list with 5 items	

(ii) Explain how the `
` tag on line 34 will affect how the text is displayed. [1 mark]

(iii) State what will happen if a user rolls a mouse over the image stored as "penguin.jpg" when the page is viewed in a browser. (See line 10 of the code.) [1 mark]

(iv) State why line 45 has been highlighted by the authoring package. [1 mark]

Emma is using scripting to add interactive features to a new website.

(d) She uses the FOR, WHILE and ELSE...IF statements in her Javascript. State whether each statement, in the table below, is an example of a Repetition statement or a Selection statement. [3 marks]

Statement	Repetition / Selection
WHILE	
ELSE...IF	
FOR	

11 Evaluation is an important stage in the development of a system.

(a) List **two** aims of the evaluation process. [2 marks]

1. _____

2. _____

(b) Identify **two** individuals who should be involved in the evaluation process. [2 marks]

1. _____

2. _____

(c) Explain how the following can help in the evaluation process. [2 marks for each]

(i) User requirements

(ii) Testing outcomes

(iii) Design documents

12 Using the terms in the list below choose **one** term that best matches the definition in the left-hand column (not all terms will be used). [7 marks]

- Layout view
- Animation
- Foreign key
- Composite key
- Compression
- Window
- Event-driven
- Icon
- Pointer
- Parameter
- Sequencing

Definition	Term
A symbol on screen which tracks actions made by a user with an input device	
Area on screen showing actions being carried out by an application	
Removal of unnecessary data to support file optimisation	
A type of database query where the end user inputs the search criteria each time the query is run	
A field in one table which refers to the key field in another table	
On screen image used to represent a shortcut to a tool or application	
A series of images which play one after another to create the impression of movement	

This is the end of the question paper

For Examiner's use only	
Question Number	Marks
1	
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Total Marks	
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Examiner Number

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```

1 <!DOCTYPE html >
2 <head>
3
4 </head>
5
6 <body>
7
8 <H1>Facts about Penguins</H1>
9 <p><a href="http://www.penguins-world.com">
10 </a>&nbsp;  </p>
11
12 <table class="auto-style1" style="width: 100%">
13 <tr>
14 <td class="auto-style2" style="width: 201px">Fact Number</td>
15 <td class="auto-style2">Details</td>
16 </tr>
17 <tr>
18 <td class="auto-style2" style="width: 201px">1</td>
19 <td class="auto-style2">Penguins are flightless birds</td>
20 </tr>
21 <tr>
22 <td class="auto-style2" style="width: 201px">2</td>
23 <td class="auto-style2">Penguins do not have teeth</td>
24 </tr>
25 <tr>
26 <td class="auto-style2" style="width: 201px">3</td>
27 <td class="auto-style2">Penguins huddle together to stay warm</td>
28 </tr>
29 <tr>
30 <td class="auto-style2" style="width: 201px">4</td>
31 <td class="auto-style2">Male penguins keep the eggs warm</td>
32 </tr>
33 </table>
34 <p>There are 17 different penguin species.<br> In this site we will look at:</p>
35 <ul>
36 <li>African Penguin</li>
37 <li>Chinstrap Penguin</li>
38 <li>Emperor Penguin</li>
39 <li>Gentoo Penguin</li>
40 <li>Adelie Penguin</li>
41 </ul>
42
43 </body>
44
45 </html>
46

```