Mark Scheme (Results)

Summer 2021

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Question number	Answer	Additional guidance	Mark
1 (a)(i)	A1 Award **one** mark for: • An individual component of an HTML document. (1) • The opening tag, closing tag/content (if required). (1) • An element provides semantic structure and meaning to objects (within a webpage). (1) • Elements can contain attributes that define additional properties (of a component / part of a page). (1)	Accept: The HTML element is the root element of the page	**1**
1 (a)(ii)	A2 Award **one** mark for: • A modifier of an HTML element. (1) • Defines a property for an element. (1) • A characteristic of an element. (1)	Accept a sensible example e.g. The 'class' attribute allows you to style the element	**1**

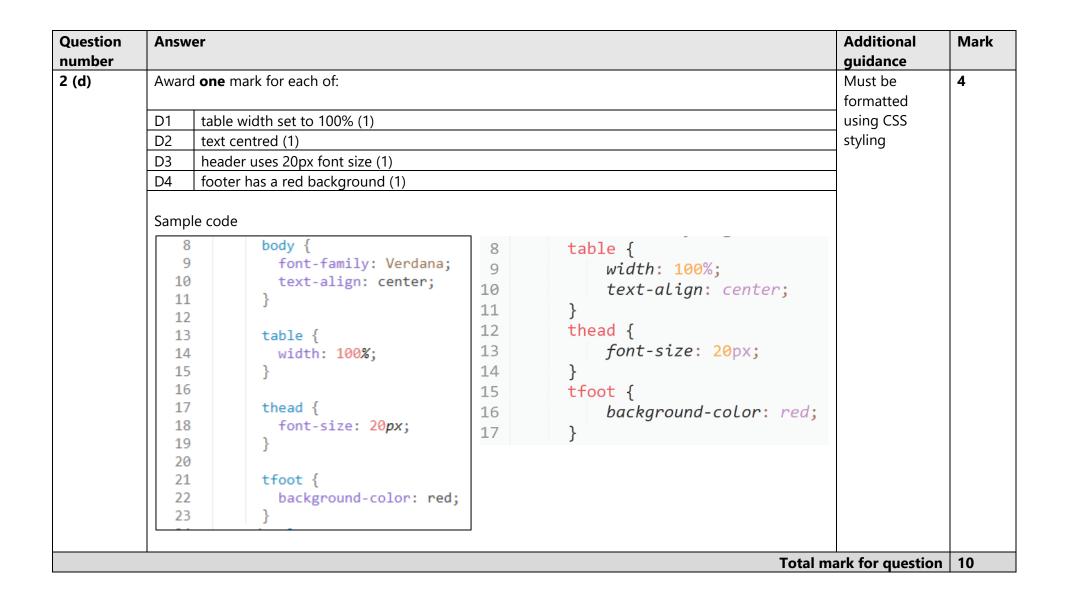| Question number	Answer	Additional guidance	Mark
1 (b)	B1 B2 Award **two** marks for a linked explanation such as: • Line 3 contains a hyperlink /clickable link on an image (1) to a page called "booking.html". (1) • An image called "bookingbutton.jpg" has been hyperlinked (1) to a page called "booking.html". (1) • The code wraps a clickable link around an image (1) that will navigate the user to the booking.html page (1) • The user will be taken to booking.html (1) when they click the image (1)		2

Question number	Answer	Additional guidance	Mark
1 (c)	Award **one** mark for each correction up to a maximum of **two** marks.		2

C1	tag added to beginning of third list item (1)	
C2	tag changed to tag (1)	

Correct code is:

```
 8      <ol>
 9          <li>Honey is food for young bees.</li>
10          <li>There are some species of bees that are killer bees.</li>
11          <li>A lot of people think all bees die after stinging. However, it is only some species.</li>
12          <li>Bees are calmed by smoke and this is why it is used when honey is being collected.</li>
13      </ol>
```

Question number	Answer		Additional guidance	Mark
1 (d)	D1 D2	Award **two** marks for a linked explanation such as: Used to store/create/embed custom data (1) private to the page/application / about an element (1)		**2**
Total mark for question				**8**

Question number	Answer		Additional guidance	Mark
2 (a)	A1 A2	Award **two** marks for a linked explanation such as: • An ID can be used to identify one element (1), whereas a class can be used to identify more than one element. (1) • Each element can only have one ID (1), whereas an element can use multiple classes. (1) • Classes are not unique (1), element IDs must be unique. (1) • An ID selector is a name preceded by a **hash character** ("#") (1), a class selector is a name preceded by a **full stop** (".") (1) • The class selector is used to apply styles to a HTML element (1) whereas the ID selector is used to identify an element (1).		**2**

Question number		Answer	Additional guidance	Mark
2(b)	B1 B2	Award **two** marks for a description such as: When the user hovers over the (navigation) button/ link (1) the **background** colour changes to dark grey and the **font** colour to white. (1)	Need to be clear what the colours are being applied to	**2**

Question number	Answer	Additional guidance	Mark
2 (c)	Award **one** mark for using the border-radius setting and **one** mark for applying a solid border.	Border-radius minimum of 50% or 180px Could specify pixels and black (#000) for the border. Must be formatted using CSS styling	**2**

Detail for 2(c):

C1	border-radius: 50% or border-radius: 180px; (1)
C2	Border: solid; (1)

Correct code is:

```
 7        img {
 8            border-radius:50%;
 9            border:solid;
10        }
```

```
 7 ▼      img {
 8            border-radius:180px;
 9            border:solid;
10        }
```

Question number	Answer	Additional guidance	Mark
2 (d)	Award **one** mark for each of:	Must be formatted using CSS styling	**4**

D1	table width set to 100% (1)
D2	text centred (1)
D3	header uses 20px font size (1)
D4	footer has a red background (1)

Sample code

```
8         body {
9            font-family: Verdana;
10           text-align: center;
11        }
12
13        table {
14           width: 100%;
15        }
16
17        thead {
18           font-size: 20px;
19        }
20
21        tfoot {
22           background-color: red;
23        }
```

```
8         table {
9            width: 100%;
10           text-align: center;
11        }
12        thead {
13           font-size: 20px;
14        }
15        tfoot {
16           background-color: red;
17        }
```

	Total mark for question	10

Question number	Answer	Additional guidance	Mark
3 (a)	A1 A2 Award up to **two** marks for answers such as: • <a href="success.html" (1) • onClick="window.open(this.href); return false" (1) OR • <a href="#" (1) • onClick="window.open('success.html') (1)	JavaScript must be used to for the event Accept: • double/single quotes • minor spelling errors • alternatives that would work	

Example code:

- Open page in a new window
- Open page in a new window

```
function newWindow() {
        window.location = "success.html" (1)
}
<button onclick = "newWindow()"(1)>Click here</button>


Function newWindow() {
        window.location.assign("success.html")
}
<button onclick = "newWindow()"(1)>Click here</button>
```

```
Function newWindow() {
        window.location.replace("success.html")
}
<button onclick = "newWindow()"(1)>Click here</button>


Function newWindow() {
        window.open("success.html")
}
<button onclick = "newWindow()"(1)>Click here</button>
```

Question number	Answer	Additional guidance	Mark
| **3 (b)** | Award **one** mark for each of:<br><br>| B1 | Array initialised correctly (1) |<br>| B2 | Array sorted alphabetically (1) |<br>| B3 | "unsorted" added as first paragraph's ID (1) |<br>| B4 | Sorted array displayed correctly (1) |<br><br>Sample code:<br><br>```
 7      //Initialise the array with these values in this order: Avocado, Clover, Apple, Sage, Blueberry
 8     var honeyArr = ["Avocado", "Clover", "Apple", "Sage", "Blueberry"]
 9
10     function sortArray() {
11       //display the unsorted array
12       document.getElementById("unsorted").innerHTML = "This is the unsorted array: "+honeyArr
13
14       //add code to sort the array
15       honeyArr.sort()
16       //add code to display the sorted array
17       document.getElementById("sort").innerHTML = "This is the sorted array: " +honeyArr
18       }
19     </script>
20   </head>
21   <body>
22     <h3>Open in your editor and add your code</h3>
23     <button onclick="sortArray()">Show Array</button>
24     <p id="unsorted"></p>
25     <p id="sort"></p>
``` | Do not award sort mark if it is a manual sort | 4 |

Question number	Answer		Additional guidance	Mark
3 (c)	Award **one** mark for each of:			**4**
	C1	termination of loop e.g. count<=inputName.length; (1)		
	C2	loop incremented e.g. count++ (1)		
	C3	each character in name replaced with * (1)	Allow follow through from C1 e.g. <inputName.length()	
	C4	hidden name displayed correctly outside of the loop (1)		
			Accept hidden name being displayed in the loop if appropriate e.g.	
			document.write(hiddenName)	
			hiddenName="*" document.write(hiddenName)	
			For example, so long as an alert is not shown each time an asterisk is displayed	
	Example code:			
| | ```
14          for (count = 1; count <= inputName.length; count ++){
15              hiddenName += "*"
16          }
17          alert(hiddenName)
18      }
``` | | | |

Question number		Answer	Additional guidance	Mark

3 (d)	D1 D2 D3	Award up to **three** marks for a description such as:
		
		• Line 8 sets up the validate function (1)
		• Line 9
		    ○ checks the length of the firstName (1)
		    ○ if first name has not been entered / less than 1 an error message would appear (Line 10) (1)
		• Line 16 validate function called on blur / first name has lost focus (1)
			Award max of two marks for correct answer without line numbers	3

			Total mark for question	**13**

Question number	Answer			Additional guidance	Mark
4	Award **one** mark for each of the following points up to a maximum of **fourteen** marks.				**20**
	Evidence found in				
	HTML – Head	A1	Uses an external style sheet	1	
	HTML – Body	A2	At least one HTML5 semantic element used to define part of the page: <header> <nav> <section> <article> <footer>	1	
	HTML – Body	A3	Internal link added	1	
	CSS	A4	Colour set appropriately for at least one of: header, nav, footer background - hex (#ffe570)	1	
	CSS – header	A5	Bottom border applied	1	
	HTML – Header / CSS	A6	Emphasis on either EcoBee or 'protecting our future'	1	
	CSS	A7	Header – left aligned Navigation - right-aligned Article – justified Footer – center aligned	1	
	Below 600 pixels				
	CSS	A8	Header – heading 24 pixels Header – subheading 18 pixels Navigation – 14 pixels Article – headings 20 pixels Article – text 14 pixels Footer – 14 pixels	1	
	CSS	A9	Images set to 100% width of page	1	
	600 pixels and over				
	CSS	A10	14 pixels should be set to 16 pixels 24 pixels should be set to 40 pixels	1	

			20 pixels should be set to 32 pixels 18 pixels should be set to 30 pixels	
CSS	A11	Image 1 floated left of paragraph 1 or Image 2 floated right of paragraph 2	1	
CSS	A12	Width of images set to 300 pixels	1	
Page in browser >=600 pixels	A13	Image 1 left of paragraph 1 with paragraph 1 text wrapping underneath it Image 2 right of paragraph 2 with paragraph 2 text wrapping underneath it Paragraph 3 underneath paragraph 2	1	
		Either		
CSS	A14	Suitable padding and/or margins used	1	

Award up to a maximum of **six** marks for the adherence to the component layout and the application of CSS using the levels based mark scheme below.					
Topic Area	0	1	2	3	**Mark**
Adherence to component layout design	No awardable content.	There is little adherence to the component layout design, leading to a solution that is not fit for purpose or is not suitable for the intended audience.	An attempt to adhere to the component layout design leads to a solution that is, in parts, fit for purpose and is, in parts, suitable for the intended audience.	The webpage fully adheres to the component layout design and style requirements. The resulting solution is fit for purpose and is suitable for the intended audience.	3
Application of CSS to control presentation	No awardable content.	There is little attempt to make use of the facilities of CSS to control appearance and style. Most components rely on default configuration.	An attempt has been made to use CSS to control the appearance and style of some components. This has been successful in some cases.	Consistent and accurate application of CSS is used throughout to control the appearance and style of all components.	3
				Total mark for question	**20**

Question number	Answer		Mark
5	Award **one** mark for each of the following points up to a maximum of **11** marks.		**20**
		Marks	
	registration.html		
	A1	The mobile number input is stored in the variable mobileNumber	1	
	A2	Regular expression created that would accept only digits [1-9]	1	
	A3	Regular expression created that would accept exactly 11 digits {11}	1	
	A4	At least one condition added • check if last name is invalid • check mobile phone is invalid	1	
	A5	At least one suitable error messages added • if last name is invalid • if mobile number is invalid	1	
	A6	Second part of username generated using first 2 digits of last name and stored in a suitable variable	1	
	A7	Final part of username generated using last 3 digits of mobile and stored in a suitable variable	1	
	A8	Username concatenated and stored in the variable username	1	
	welcome.html		
	A9	Passed username displays on the page (ignore errors in generation of username)	1	
	A10	15 and under message displays correctly **OR** Over 15 message displays correctly If the username that is passed has not been generated correctly look at the logic Allow the use of alert though take this into account in levels-based marks for appropriate interface design	1	
	A11	15 and under message displays **on page** correctly **AND** Over 15 message displays **on page** correctly f the username that is passed has not been generated correctly look at the logic allow the use of alert though take this into account in levels-based marks for appropriate interface design	1	

Award up to a maximum of **nine** marks for the functionality, user interface design, use of notation. Using the levels based mark scheme below.					
Topic area	**0**	**1**	**2**	**3**	**Mark**
Appropriate functionality: • components and code have been decomposed into appropriate parts • dynamic behaviours are implemented in JavaScript.		The component parts of the program are incorrect or incomplete, providing a program of limited functionality that meets some of the given requirements. Mostly inappropriate logic used.	The component parts of the program are complete, providing a functional program that meets some of the given requirements. Some parts of the logic are clear and mostly appropriate to the problem.	The component parts of the program are complete, providing a functional program that fully meets the given requirements. The logic is clear and appropriate to the problem.	3
Appropriate interface design: • error messages and other status reports • Interactivity between JavaScript and HTML		The design of the user interface lacks consideration for fitness for purpose and the intended audience.	The design of the user interface is in parts fit for purpose and addresses some of the needs of the intended audience.	The design of the user interface is fully fit for purpose and suitable for the intended audience.	3

Topic area	0	1	2	3	Mark
Appropriate use of notation: • presentation of JavaScript ensures clear readability • comments provide clarity.		Uses programming constructs and techniques to produce some required outcomes in the code. Uses data types that are rarely appropriate to the problem. Limited use of accurate syntax. Limited appropriate use and manipulation of data structures. Some use of meaningful variable names with limited or unhelpful commenting. Parts of the code are clear and readable but much of it makes limited use of appropriate spacing and indentation.	Uses programming constructs and techniques to produce most of required outcomes in the code. Uses data types, some of which are appropriate to the problem. Uses mostly accurate syntax. Accesses and manipulates data structures to produce mostly correct results and/or outcomes. Uses mostly meaningful variable names, with some use of appropriate commenting. Code is mostly clear and readable, making some use of appropriate spacing and indentation.	Accurate programming constructs and techniques are used. Appropriate data types are selected. Accurate syntax is used. Data structures are accessed and manipulated efficiently Meaningful variable names and comments are used throughout. Code is clear and readable, making effective use of appropriate spacing and indentation.	3
				Total mark for question	**20**

Code Examples

registration.html

```
 6      <script>
 7        function join(){
 8          var firstName = document.getElementById("firstname").value
 9          var lastName = document.getElementById("lastname").value
10          var age = document.forms.ageChoice.age.value;
11
12          // add code to assign the input mobile phone to the mobileNumber variable
13          var mobileNumber = document.getElementById("mobile").value
14
15          /* regular expression to accept a single uppercase letter followed by 1 or more lowercase lette
16          var acceptableNames = /^[A-Z]{1}[a-z]+$/
17
18          // add code to create a regular expression that will accept exactly 11 digits
19          var acceptableMobile = /^[0-9]{11}$/
20
21          // display error if first name is not entered by user
22          if (acceptableNames.test(firstName) === false){
23            alert("First name must start with an uppercase letter followed by lowercase letters ")
24
25          }else if(acceptableNames.test(lastName) === false){
26
27            // add code to display suitable error message*/
28            alert("Last name must start with an uppercase letter followed by lowercase letters.")
29
30          }else if(acceptableMobile.test(mobileNumber) === false){
31
32            // add code to display suitable error message*/
33            alert("Mobile number must be exactly 11 digits long")
34
35          }else if(age === ""){
36            alert("You must select an age group")
37
38          }else{
39            // generate first part of username using first 3 letters of first name
40            var firstpart = firstName.substring(0,3)
41
42            // add code to generate second part of username using first 2 letters of last name
43            var secondpart = lastName.substring(0,2)
44
45            // add code to generate the final part of username using last 3 digits of telephone number
46            var finalpart = mobileNumber.substring(8,11)
47
48            // add code to create the username
49            var username = firstpart + secondpart + finalpart
50
51            // load welcome.html and pass the username and age to it
52            window.location.href="welcomeFINISHED.html?userAndAge=" + username + "," +age
53          }
54        }
55      </script>
```

welcome.html

```
// add code to display the username:
document.getElementById("usernameMessage").innerHTML = "Your user name
  is "+username
```

```
27
28          /* add code to display the relevant age related message.
29          The message for juniors is in the file junior.txt.
30          The message for adults is in the file adult.txt*/
31
32          if (age === "15"){
33            document.getElementById("ageMessage").innerHTML = "Please note that in the next few weeks we will be adding a junior
              section to our website. You will automatically have access to that part of the site.  There will be fun things to do and
              weekly competitions."
34          }else{
35            document.getElementById("ageMessage").innerHTML = "We would like to invite you to our weekly online fundraising idea
              forum. This takes place on a Tuesday between GMT hours of 19:00 and 20:00. We hope to see you there."
36          }
```

Question number	Indicative content	Mark

6	**Should be identifying factors they think are important**
	For example
	• Website will have a total of 10 pages (including those from questions 4 and 5)
	• The navigation must respond to the size of the screen without negatively affecting the user's experience
	
	Consideration and significance
	Should consider different sized screens.
	Majority of mobile devices visiting websites (2021) are HD or better
	
	Horizontal scrolling menu
	• Would probably not be required on desktops as only 10 pages but could be useful on mobile devices
	  o Could be sized to not take up too much space on the screen
	  o Could try to ensure the most important links appear first
	  o It would not take too much of the user's time to scroll through 10 links
	  o Could possibly need to remove scrolling from desktop and add to mobile
	  o Menus would look the same in either version just one would have scrolling and the other would not
	
	Vertical menu
	• Useful for desktops and mobiles
	• Could end up taking up more vertical space than the actual content of the pages though
	• For mobile devices could ensure the menu appears after all content with a link to it.
	• Menus would look the same in either version
	• Only 10 pages so would not be too many links – would not take up too much time
		9

Dropdown menu
- Would probably not be required on desktops as only 10 links but could be useful on mobiles. The menus would therefore be different
- User would need to know that there is a drop-down menu. 'Hamburger' is commonly used to denote this
- Menus would be accessed differently but could still have links in exactly the same order
- Only on screen as and when needed
- Useful for the 10 pages of this site

Breadcrumbs
- Useful but could potentially not be relevant to a site this size and where depth of pages/nesting is unknown

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1-3	• Applies understanding with limited coherence, showing limited understanding of the given issue. • Assessment of solution is superficial or unbalanced, and judgements lack support from evidence.
Level 2	4-6	• Applies understanding to make some coherent connections, showing some understanding of the given issue. • Assessment of solution is partially developed, but this may be unbalanced, using evidence to support some judgements.
Level 3	7-9	• Applies understanding coherently, showing a thorough understanding of the given issue. • Assessment of solution is balanced and developed, using evidence to support judgements throughout.
Total for question		**9**