This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2024 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptions for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1: Marks must be awarded in line with: • the specific content of the mark scheme or the generic level descriptors for the question • the specific skills defined in the mark scheme or in the generic level descriptors for the question • the standard of response required by a candidate as exemplified by the standardisation scripts.
GENERIC MARKING PRINCIPLE 2: Marks awarded are always **whole marks** (not half marks, or other fractions).
GENERIC MARKING PRINCIPLE 3: Marks must be awarded **positively**: • marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate • marks are awarded when candidates clearly demonstrate what they know and can do • marks are not deducted for errors • marks are not deducted for omissions • answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.
GENERIC MARKING PRINCIPLE 4: Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.
GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Task	Answer	Marks
	Task 1 – Spreadsheet Candidate file **BreakEven_**	
1(a)	Project data	
	All except *Number of projected sales* in £ currency with correct values entered	**5**
	A valid formula for income is used (Number of projected sales × Selling price) *D14*C14*	
	A valid formula for Profit is used *E14-(D6+D7+(D10*D14))*	
	The *Profit* is shown as *zero*	
	The *Selling price = £13.45*	
	Task 1 – Spreadsheet Candidate file **BreakEven_**	
1(b)	Sales Projections	
	The *Advertising* limits are set correctly to *£15000/£25000 with a* suitable *validation message* is set	**5**
	The *Monitor selling price* and *Income formulas* are replicated correctly and the values are correct	
	The *Profit* formula is replicated correctly and the values are correct	
	The *Number of projected sales* formula is amended with correct Absolute and Relative references are used	
	The *Number of projected sales* formula is replicated correctly and the values are correct	

Task	Answer	Marks
Task 1 – Spreadsheet Chart Candidate file **BreakEven_**		
1(c)	Format	
	A *Chart Sheet* is used to display the chart.	**1**
1(d)	Axis formatting	
	The *Vertical axis* is formatted as currency. The label is shown as Profit and is formatted as vertical text.	**3**
	The *Horizontal axis* is formatted as currency. The label is shown as *Monitor Selling Price.*	
	Vertical secondary axis is shown with *label* shown as *Sales* and set as *vertical text.*	
1(e)	Title	
	Title is shown as *Pollution Monitor Sales Projections.*	**1**
1(f)	Legend	
	The legend is correct and in the *correct place.*	**1**
Task 1 – Spreadsheet Model Candidate file **MarketingScenarios_**		
1(g)	Max Profit	
	The *new table* is complete and placed in the correct worksheet.	**4**
	The table shows the correct *Maximum Profit* values.	
	The table shows the correct corresponding *Monitor selling price* values.	
	The *correct row is highlighted.*	

Task	Answer	Marks
Task 2 – Image Editing Candidate file **NightScene_**		
2(a)	Step 1	
	The figure in the sea is removed.	**4**
	The reflection of the figure is removed.	
	The ripples in the sea are contiguous.	
	The remainder of the image is preserved.	
2(b)	Step 2 and 3	
	There is a Black/Blue gradient for the sky.	**3**
	The proportion of the Black/Blue gradient is suitable and above sea-level.	
	Both headlands cut-out cleanly and preserved in greyscale.	
2(c)	Step 4	
	The sea and the beach are masked in a blue shade.	**2**
	All and only the sea and the sand are masked in a blue shade.	
2(d)	Step 5 extract	
	The Moon.jpg image is inserted.	**3**
	The moon has been extracted.	
	The moon image has been extracted cleanly with no evidence of a larger area.	
2(e)	Step 5 edit	
	The moon image is placed in the correct position.	**3**
	The moon image is sized correctly.	
	The moon image is recoloured appropriately (Silver).	
2(f)	Step 6	
	A halo is added to the moon image.	**3**
	The halo is 'fuzzy', positioned correctly and is concentric.	
	The size of the halo is appropriate.	

Task	Answer	Marks
2(g)	Step 7 stars	
	Realistic stars have been added to the sky.	**2**
	There are a variety of star sizes.	
2(h)	Step 7 lights	
	There are white lights on the headland.	**5**
	The size and position of the lights are correct.	
	Lights have been added to the boat.	
	The position of the lights matches those shown in the question paper.	
	The size and shape of the lights match those shown in the question paper.	
2(i)	Step 8	
	The Moonlight.png image is used.	**5**
	The reflection is extracted.	
	The reflection is extracted cleanly with no black remnants.	
	The reflection extraction is precise and includes the required fine details.	
	The final composite image is complete and saved as a png file.	

Task	Answer	Marks
Task 3 – Animation Candidate file **Orbit_**		
3(a)	Canvas and text	
	The animation is set to 900 × 480 and Background.gif is used.	**2**
	All the original text and both axes are preserved.	
3(b)	Earth and Axis	
	The Axis and the Earth images are combined at all times	**2**
	The Axis angle is static and the Earth images rotates.	
3(c)	Earth path	
	An invisible elliptical path is used. No second path is seen.	**4**
	The Axis and the Earth images follow the path smoothly.	
	The rotation takes about 8 seconds.	
	The Axis\Earth image is central on the ellipse at all times.	
3(d)	Light side	
	The Earth image faces sun at Aphelion and Perihelion.	**4**
	The Earth image faces the sun at both Solstices.	
	The Earth image faces the sun at both Equinoxes.	
	The Earth image always faces sun at all points along the path.	
3(e)	Equinox	
	1st Equinox text is correct	**4**
	1st Equinox text appears at the correct time and remains.	
	2nd Equinox text is correct	
	2nd Equinox text appears at the correct time and remains.	
3(f)	Solstice	
	1st Solstice text is correct	**4**
	1st Solstice text appears at the correct time and remains.	
	2nd Solstice text is correct	
	2nd Solstice text appears at the correct time and remains.	

Task	Answer	Marks
3(g)	Text	
	All text is static and remains in place until next orbit and is static at all times.	**2**
	All text is white, consistent and formatted to match the text shown in the question paper.	
3(h)	Loop	
	The animation loops seamlessly.	**1**

Task	Answer	Marks
Task 4 – Web page
Candidate file **MemWordTest_**
4(a)	Correct	
	The correct result is seen when correct letter is entered '**Memorable word check ok'**	**2**
	The *Submit button is hidden* when the correct letter is entered.	
4(b)	Incorrect	
	The correct result is seen when an incorrect letter is entered	**4**
	The *Try again button* is shown when an incorrect letter is entered and text **'Security check failed'** is shown for each incorrect entry.	
	The result for 3 incorrect tries is correct and text **Security check failed** remains for each incorrect entry.	
	The text **'Refresh the page to try again'** is shown after 3 incorrect entries.	
4(c)	var	
	A variable for number of entries is used.	**2**
	The variable for the number of entries is initialised as 0 or 3.	
4(d)	if & else	
	The MemWordTest.js file is edited.	**5**
	if … = TryAgainButton.style.display="none" and code is seen.	
	if … = SubmitButton.style.display="none" and code is seen.	
	else … = TryAgainButton.style.display="inline" and code is seen.	
	else … = SubmitButton.style.display="none" and code is seen.	
4(e)	if tries	
	The ++ or valid method for incrementation is used.	**4**
	If (tries>0) document.getElementById("Result").innerHTML = "Security check failed"; and code is seen.	
	if (tries>2) document.getElementById("LockOut").innerHTML = "Refresh the page to try again"; and code is seen.	
	document.getElementById("TryAgainButton").style.display="none"; and code is seen.	