Cambridge National

IT

R050/01: IT in the digital world

Level 1/2 Cambridge National Certificate/Award/Diploma

Mark Scheme for June 2024

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

MARKING INSTRUCTIONS

PREPARATION FOR MARKING
RM ASSESSOR

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: *RM Assessor Assessor Online Training*; *OCR Essential Guide to Marking*.

2. Make sure that you have read and understood the mark scheme and the question paper for this unit. These are posted on the RM Cambridge Assessment Support Portal http://www.rm.com/support/ca

3. Log-in to RM Assessor and mark the **required number** of practice responses ("scripts") and the **number of required** standardisation responses.

   YOU MUST MARK 10 PRACTICE AND 10 STANDARDISATION RESPONSES BEFORE YOU CAN BE APPROVED TO MARK LIVE SCRIPTS.

MARKING

1. Mark strictly to the mark scheme.

2. Marks awarded must relate directly to the marking criteria.

3. The schedule of dates is very important. It is essential that you meet the RM Assessor 50% and 100% (traditional 40% Batch 1 and 100% Batch 2) deadlines. If you experience problems, you must contact your Team Leader (Supervisor) without delay.

4. If you are in any doubt about applying the mark scheme, consult your Team Leader by telephone or the RM Assessor messaging system, or by email.

5. **Crossed Out Responses**
   Where a candidate has crossed out a response and provided a clear alternative then the crossed out response is not marked. Where no alternative response has been provided, examiners may give candidates the benefit of the doubt and mark the crossed out response where legible.

   Rubric Error Responses – Optional Questions
   Where candidates have a choice of question across a whole paper or a whole section and have provided more answers than required, then all responses are marked and the highest mark allowable within the rubric is given. Enter a mark for each question answered into RM assessor, which will select the

highest mark from those awarded. *(The underlying assumption is that the candidate has penalised themselves by attempting more questions than necessary in the time allowed.)*

Multiple Choice Question Responses
When a multiple choice question has only a single, correct response and a candidate provides two responses (even if one of these responses is correct), then no mark should be awarded (as it is not possible to determine which was the first response selected by the candidate).
When a question requires candidates to select more than one option/multiple options, then local marking arrangements need to ensure consistency of approach.

Contradictory Responses
When a candidate provides contradictory responses, then no mark should be awarded, even if one of the answers is correct.

Short Answer Questions (requiring only a list by way of a response, usually worth only **one mark per response**)
Where candidates are required to provide a set number of short answer responses then only the set number of responses should be marked. The response space should be marked from left to right on each line and then line by line until the required number of responses have been considered. The remaining responses should not then be marked. Examiners will have to apply judgement as to whether a 'second response' on a line is a development of the 'first response', rather than a separate, discrete response. *(The underlying assumption is that the candidate is attempting to hedge their bets and therefore getting undue benefit rather than engaging with the question and giving the most relevant/correct responses.)*

Short Answer Questions (requiring a more developed response, worth **two or more marks**)
If the candidates are required to provide a description of, say, three items or factors and four items or factors are provided, then mark on a similar basis – that is downwards (as it is unlikely in this situation that a candidate will provide more than one response in each section of the response space.)

Longer Answer Questions (requiring a developed response)
Where candidates have provided two (or more) responses to a medium or high tariff question which only required a single (developed) response and not crossed out the first response, then only the first response should be marked. Examiners will need to apply professional judgement as to whether the second (or a subsequent) response is a 'new start' or simply a poorly expressed continuation of the first response.

6. Always check the pages (and additional objects if present) at the end of the response in case any answers have been continued there. If the candidate has continued an answer there, then add a tick to confirm that the work has been seen.

7. Award No Response (NR) if:
    - there is nothing written in the answer space

Award Zero '0' if:
    - anything is written in the answer space and is not worthy of credit (this includes text and symbols).

Team Leaders must confirm the correct use of the NR button with their markers before live marking commences and should check this when reviewing scripts.

8. The RM Assessor **comments box** is used by your team leader to explain the marking of the practice responses. Please refer to these comments when checking your practice responses. **Do not use the comments box for any other reason.**
   If you have any questions or comments for your team leader, use the phone, the RM Assessor messaging system, or e-mail.

9. Assistant Examiners will send a brief report on the performance of candidates to their Team Leader (Supervisor) via email by the end of the marking period. The report should contain notes on particular strengths displayed as well as common errors or weaknesses. Constructive criticism of the question paper/mark scheme is also appreciated.

10. For answers marked by levels of response:
    a. **To determine the level** – start at the highest level and work down until you reach the level that matches the answer
    b. **To determine the mark within the level**, consider the following

Descriptor	Award mark
On the borderline of this level and the one below	At bottom of level
Just enough achievement on balance for this level	Above bottom and either below middle or at middle of level (depending on number of marks available)
Meets the criteria but with some slight inconsistency	Above middle and either below top of level or at middle of level (depending on number of marks available)
Consistently meets the criteria for this level	At top of level

11. **Annotations**

Annotation	Meaning
✔	Tick
✘	Cross
BP	Blank page (mandatory for all units)
BOD	Benefit of doubt
TV	Too vague
SEEN	Noted but no credit given
NBOD	Benefit of doubt not given
NAQ	Not answered question
L3	Level 3
L2	Level 2
L1	Level 1
REP	Repeat

Question			Answer	Mark	Guidance
Section A					
1			One from • Library (1) • Tunnel (timeline) (1) • Presentation (1)	1	Accept equivalent terminology Do not accept: • Spider diagram • Brand names
2			One from • Type (1) • Size (1)	1	Accept equivalent terminology Accept example of e.g. • LCD
3			• Data (1) • Context/Meaning (1)	2	Order not relevant
4			One from • Real (1) • Decimal (1) • Float (1) • Numeric(al)/Number (1)	1	
5			One from • Spyware (1) • Keylogs/keylogger (1) • Adware (1)	1	Accept examples
6			• Biometric (1)	1	Accept examples e.g. Fingerprint scanner,

Question			Answer	Mark	Guidance
			Section A		
7			One from • Freedom of Information Act / FIA (1) • General Data Protection Regulations/GDPR (1) • Data Protection Act/DPA (1)	1	
8			• **Collaboration -** Makes teamwork more productive and effective (1) • **Database** - Stores data and records in an organised way (1)	2 x 1	CAO Two lines from/to one box = TV
9			One from • Mobile Wi-Fi (Hotspot) (1) • 4G/5G/Mobile data (1) • Satellite (1)	1	Accept examples Do not accept • Wi-Fi –TV • Wireless - TV
10			• **D /** Location (1)	1	
11			One from • Thing(s) (1) • Device(s) (1)	1	Accept examples
12			Two from • Ambulance/Paramedic (1) • Coastguard (1) • Fire Service (1) • Mountain Rescue (1) • Search and Rescue/Military (1) • Police (1)	2	Accept examples of first line responders Do not accept: • NHS – tv • Medical service – tv • Hospital - TV

Question			Answer	Mark	Guidance
Section B					
13	(a)		General explanation of one advantage and one disadvantage of using online surveys to include: **Advantage:** • Large numbers of people/Large scale (1) can be asked to complete the same online survey (1) • Comparisons are easy to formulate (1) as the same questions will be asked (1) • Cheaper than using face to face methods / interviews (1) for large number of schools (1) • Easier/Faster/Saves time method of collecting information (1) than using other forms of survey (1) • **Award credit for any other suitable response** **Disadvantage:** • Responses may not be completed/sent (1) if a (stable) internet connection is not available (1) • The survey may end up in spam (1) if sent by email (1) • If the questions are not designed / worded well (1) then the answers may not be in the correct format / useful (1) • People may not be truthful in their response (1) leading to inaccurate/irrelevant data (1) • Can take time to complete (1) so people may not fill them in properly (1) • **Award credit for any other suitable response**	4	**Read whole response and award:** • **One** mark for identified advantage/disadvantage of using an online survey • **One** mark for expanded detail Allow mix and match of mark points Accept equivalent terminology

	Question		Answer	Mark	Guidance
13	(b)		One from: • Email (1) • Interview (1) • <u>Physical</u> survey/questionaries (1) • Focus groups (1) • **Award credit for any other suitable response**	1	Accept equivalent terminology
14	(a)		Explanation of how using the HCI on a website will impact on the design of the HCI: • The pupils may use different input devices/methods to use website (1) which may need different HCI functionality (1) • Different browsers will be used to view the website (1) so the compatibility of the HCI needs to be considered at design/plan stage (1) • Website will be used on different screen sizes (1) so HCI needs to not be cluttered (1) • Website is viewed on different devices (1) so HCI will need to be responsive/adapt (1) • HCI will use contrasting colours (1) for website accessibility/user disabilities (1) • Use of the website will need to be learnt (1) so instructions will need to be included in the HCI (1) • **Accept any other suitable response**	2	**Read whole response and award:** • **One** mark website consideration • **One** mark for HCI consideration Allow mix and match of mark points Accept equivalent terminology

14	(b)			**Indicative content:**
				Purpose:
				• To attack a website/Make a website unavailable
				• Attempts to make the website unavailable by flooding it with useless traffic to cause economic harm
				• Force a website offline using Bots to send a high volume of requests to damage the organisations reputation
				• **Award credit for any other suitable response**
				
				Impact:
				• Authorised users / schools are unable to access / use the website and game
				• Pupils progress in the game will not be saved
				• Users may not use the website again and move to a different provider
				• If a subscription has to be paid then the website creators may lose money as users leave to a more reliable provider
				• Company reputation is impacted
				• **Award credit for any other suitable response**
				
				Logical prevention measures:
				• Anti-virus / malware software
				   ○ Prevents malicious software reaching the website
				   ○ Can quarantine / delete based on options set by user
				   ○ Must be kept up to date
				• Firewall
					9	**Descriptors are for the top of the Level**
						Level 3 (high): 7-9 marks
						A **thorough** discussion which shows **detailed** understanding:
						• **Detailed** knowledge and understanding that **explains** the purpose of a DoS attack
						• **Explains** the **impact** on the website
						• **More than one relevant logical** prevention measure is **explained**.
						• Consistently used appropriate terminology.
						
						Level 2 (mid): 4-6 marks
						An **adequate** discussion which shows **sound** understanding:
						• **Sound** knowledge and understanding that **describes** the **purpose** of a DoS attack.
						• **Describes** the **impact** on the website
						• **At least one relevant logical** prevention measure is **described**.
						• Some use of appropriate terminology.
						
						Level 1 (low): 1-3 marks
						A **brief** discussion which shows **limited** understanding:
						• **Limited** knowledge and understanding that **identifies** the **purpose** of a DoS attack.
						• **Potential impacts** on a website may be **identified**
						• **Prevention measures**, which may not be wholly relevant, may be **identified**
						• Little or no use of appropriate terminology.
						
						0 marks No response worthy of credit.

| | | | | o Monitors the traffic o Blocks malicious traffic based on pre-determined rules o Award credit for any other suitable response Secure back-ups o A copy of the files associated with the website/ restore the files Traffic limiting o Bandwidth management o Limit the number of users accessing at a time CAPTCHA/ReCAPTCHA o Prevent bot generated traffic **Award credit for any other suitable response** | |

14	(c)		If the response if not a flow chart = NAQ.	8	**Answers may go across both pages- ensure both pages are annotated.**

If the response if not a flow chart = NAQ.

LAYOUT			CONTENT		TOTAL
4 marks	All symbols used correctly and consistently	**+**	4 marks	All relevant content	**Level 3:** 7 or 8 marks
3 marks	Most symbols used correctly.		3 marks	Mostly relevant content with logical flow	**Level 2:** 4 – 6 marks
2 marks	Some symbols used correctly		2 marks	Some relevant content but limited logical flow	**=**
1 mark	Simplistic layout with limited use of correct symbols		1 mark	Limited relevant content	**Level 1:** 1 - 3 marks

Answers may go across both pages- ensure both pages are annotated.

Indicative content

Layout:
- Standard flowchart symbols used
- Start & End/Stop used
- Decisions/Questions have 2 answers leading to Output(s)/Process(es)
- Repeat/Loop/4 questions

Content:
- Logical flow based on scenario/game content
- Relevant decisions to questions shown
- Message displayed
- Score add/ +1 score
- Final score shown
- All symbols show content

Question			Answer	Mark	Guidance

14	(d)		**Three** marks for data type & justification:
			 • Numeric(al)/Integer / Real /Float (1st)
			     o There are 4 questions in the game (1) which need to be added together as a number (1)
			     o The number of right answers (1) can be stored as a whole number (1)
			     o The points will be added together (1) and will produce a whole number (1)
			     o **Award credit for any other suitable response**
			 • Alphanumeric (1st)
			     o The score can be displayed as words (1) on the screen for the pupil to read (1)
			     o The correct answers will be added together (1) and converted into text on the screen (1)
			     o The points will be added together for a total score (1) and displayed as "3 correct" (1)
			     o **Award credit for any other suitable response**
				3	**One mark** for valid data type
					 Marks 2 and **3** for **justification** in context linked to the data type identified
					
					 Allow mix and match of mark points **(for the same data type)**

14	(e)		An explanation of how a presence check will reduce errors to include: • Checks that an answer has been given (1) and does not let pupil move on until answer given (1) • If no answer has been provided by the pupils (1) then an error message should be displayed (1) • The box will be highlighted (1) if no answer has been entered into it (1) • **Award credit for any other suitable response**	2	**Read whole response and award:** • **One** mark for what a presence check does • **One** mark for how it checks question is answered Allow mix and match of mark points

Question			Answer	Mark	Guidance
14	**(f)**		**Two** from: • Data type check (1) • Format check (1) • Input mask (1) • Length check (1) • Limited choice / Drop down list / Radio buttons / Tick list (1) • Lookup (1) • Range check (1)	2	**Do not accept** • presence check- already in question Accept more than example from limited choice list
15	**(a)**		**Two** marks for each explanation e.g.: **Advantage:** • Different classes can have access to the game (1) based on user profiles set up on the network drive (1) • The progress of the pupils through the game (1) can be saved to be retrieved later (1) • The software can be backed up (1) from any device in the school (1) • Faster local speeds on network (1) than using internet-based game (1) • Reduced security risk (1) as game is hosted locally/ not internet based (1) • Network drive tends to have a large capacity (1) so lots of pupils games/data can be stored (1)	4	**Read whole response and award:** • **One** mark for advantage/disadvantage • **One** mark for expansion related to storing data on a network Allow mix and match of mark points

Question			Answer	Mark	Guidance
			• Cheaper to use existing network drive (1) than paying more to the company to host their data (1) • **Award credit for any other suitable response** **Disadvantage:** • If the network drive and it fails (1) all data stored on it may be lost (1) • The school needs to have a backup (1) stored on a different device / location in case the network drive fails (1) • Technical expertise may be needed to maintain the network drive (1) so the cost may increase for the school (1) • Network drives can be hacked/locked/blocked (1) meaning data cannot be accessed (1) • Saving data in another location (1) increase the security risks to the data (1) • Need a stable connection (1) to access/save the files on the drive (1) • Network could slowdown (1) as lots of pupils' data is moved/pulled through the network (1) • It can be expensive to run (1) a network due to its complexity (1) • **Award credit for any other suitable response**		
15	**(b)**		**Two** marks for each explanation e.g.:	4	**Read whole response and award:** • **One** mark for issue of using **wired** connections • **One** mark for expansion of impact in context

Question				Answer	Mark	Guidance
				- Devices cannot be moved (1) so pupils have to sit in the same place in a classroom to play the game (1) - Cables / leads can be loose / become unplugged (1) so connectivity to the network drive may be lost and the game cannot be played / accessed (1) - Its costs more to set up/maintain a wired network (1) due to the costs of cables/replacing cables/ switches (1) - Mobile devices (used for the game) do not tend to have ethernet ports (1) so cannot access the wired network (1) - Wires/Cables can cause accidents/ hazards (1) by tripping on them/caught up in them (1) **Award credit for any other suitable response**		Allow mix and match of mark points

| 16 | (a) | Up to **3 marks** for each pillar and justification to include:

Input
• People (1st)
    o Pupil uses their voice (1)
    o To enter their name / answer/data (1)
    o **Award credit for any other suitable response**
• Thing/Device (1st)
    o Microphone records voice (1)
    o Which is the data entry for the name/ answer (1)
    o **Award credit for any other suitable response**

Score
• Process (1st)
    o Data/Audio is interpreted/processed/converted (1) into an answer (1)
    o Correct answers are added up (1) produce a final score for pupil (1)
    o Final score is processed/converted (1) into audio/visual for output (1)
    o **Award credit for any other suitable response**

Output
• People (1st)
    o Speaker/Device outputs (1) score so that it can be heard by pupil (1)
    o Screen shows (1) the final score from the game (1) | 9 | **Pillar must be correct for other marks to be considered.**

1 mark for valid pillar (Max 3)

Marks 2 and **3** for justification in context (game played on smart device)

Justification must link to the pillar stated |

16	(b)	**Two** from:	2	**Read whole response**
		- Uses wavelength to transfer data (1) - Wireless technology (1) - A range of devices can use Bluetooth (1) - Limited/Short connectivity range (1) - Power efficient (1) - Device pairing enhances security (1) - Profile use – hands free, speaker connect (1) - Low latency/delay (1) - Does not require internet (1) **Award credit for any other suitable response**		
17	(a)	**One** from: - DTP (1) - Word processing (1) - Presentation software (1) - Spreadsheet (1) **Award credit for any other suitable response**	1	Accept brand names e.g. - Adobe Express - Adobe inDesign - Adobe Photoshop - Canva - MS Publisher - Visme
17	(b)	**Two** marks for each explanation e.g.: - Can see the data easily (1) about the benefits of playing the game (1) - Can illustrate the options available (1) in a clear and understandable manner (1)		**Read whole response and award:** **One** mark for identified advantage **One** mark for expansion related to context Allow mix and match of mark points

○ **Award credit for any other suitable response**

| | | | | • Can capture the audience attention quickly (1) due to its colours/imagery (1)
 • Infographic is condensed/short document (1) so audience/pupils/parents will read it (1)
 • Summarises the data (1) so reader can make a decision easier (1)
 • Schools can make a quick decision about the suitability of the game (1) as an overview is given in the infographic (1)
 • Schools are aware of the appropriateness of the game (1) for their pupils as features / functionality of the game can be explained clearly (1)
 • Schools can look at infographic and use the contact details included (1) to enquire about further information as details will be provided on infographic (1)
 • **Award credit for any other suitable response** | | |

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