OCR
Oxford Cambridge and RSA

GCSE

Computer Science

J277/01: Computer systems

General Certificate of Secondary Education

Mark Scheme for June 2024

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of candidates of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, Cambridge Nationals, Cambridge Technicals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

It is also responsible for developing new specifications to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support, which keep pace with the changing needs of today's society.

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 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

- there is nothing of relevance to the question written in the answer space

Award Zero '0' if:

- anything is written in the answer space and is related to the question 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: Not applicable in F501
    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
	Omission mark
	Benefit of doubt (must be accompanied with a tick)
	Cross
	Follow through (must be accompanied with a tick)
	Not answered question
	Benefit of doubt not given
	Repeat
	Tick
	Too vague
	Blank pages, pages with no annotation, no attempt to answer the question, page seen on QER
	QER Level 1 mark awarded
	QER Level 2 mark awarded
	QER Level 3 mark awarded

12. Subject Specific Marking Instructions

Mark scheme conventions:

- Each mark point is worth 1 mark unless stated otherwise
- Each mark point can only be awarded once
- A word/phrase that is underlined needs to be exact in the answer to award the mark point
- A word/phrase that is **bold** needs that concept to be in the answer (but can be given in multiple ways) to award the mark point
- 3 dots at the end of one mark point and at the start of the next mark point mean that the second mark point cannot be awarded without the first being awarded, unless the mark scheme states otherwise (for example a reasonable attempt with some inaccuracies)
- 3 dots at the start of a mark point, without 3 dots at the end of the mark point above, means the sentence carries on and there is no dependency
- Any text in brackets is not required to gain the mark point
- Single / means alternative word
- Double // means an alternative statement that is acceptable for the same mark point
- Enlarged font is used for visibility reasons only

Annotating scripts:

- Blank pages at the start of the script need SEEN annotation
- Any questions answered elsewhere (e.g. on the first blank pages, separately on the page) need to be linked within RM Assessor and annotated with ticks/crosses/SEEN as appropriate
- 1 tick for every mark awarded, if a question is given 3 marks there must be 3 ticks (apart from QER question)
- A BOD or FT annotation needs to be accompanied by a tick
- QER question 4 – One annotation from: L1, L2 or L3, according to the level awarded, the page not annotated with the level needs a SEEN annotation. Do not include any ticks, crosses or other annotations on this question – other than SEEN and one from: L1, L2 or L3. A single cross can be used when there is nothing of credit and 0 marks (instead of NR) is being awarded.
- Any answers with no candidate response need a SEEN annotation and NR entered as the mark.
- Any questions where the candidate has not attempted the question e.g. answered 'don't know' need a SEEN annotation and NR entered as the mark.
- All questions must be annotated throughout the marking process.

<table>
<tr><th colspan="3">Question</th><th>Answer</th><th>Mark</th><th>Guidance</th></tr>
<tr><td>1</td><td>a</td><td></td><td>1 mark each
<table><tr><th>8-bit Binary</th><th>Denary</th></tr><tr><td>11110000</td><td>240</td></tr><tr><td>01101001</td><td>105</td></tr><tr><td>00011110</td><td>30</td></tr></table></td><td>3</td><td>Binary must be 8-bits</td></tr>
<tr><td>1</td><td>b</td><td></td><td>1 mark each
<table><tr><th>Statement</th><th>Answer</th></tr><tr><td>The smallest denary number that can be represented by a 4-bit binary number.</td><td>0</td></tr><tr><td>The largest denary number that can be represent by a 6-bit binary number.</td><td>63</td></tr><tr><td>The maximum number of different colours that can be represented with a colour depth of 7-bits</td><td>128</td></tr><tr><td>The minimum number of bits needed to represent 150 different characters in a character set.</td><td>8</td></tr></table></td><td>4</td><td>Accept calculations that equate to the same answer.

Accept any number of 0s for the first answer.</td></tr>
<tr><td>1</td><td>c</td><td></td><td>11110000</td><td>1</td><td>Ignore leading 0s</td></tr>
</table>

1	**d**		1 mark for an example 2-digit hex number **correctly** converted into denary. 1 mark each to max 2 for describing/showing each stage. Either: Multiplying: • **Multiply** the **left/first** digit by **16** • **Add** value of **second** digit (without additional calculation) Or: Converting: • Convert each digit into **4-bit binary** • Combine and convert the **8-bit binary** to denary	3	No marks for converting denary to hex. If the example has an inaccurate result, for example they have converted A to 11. They can still get the method marks. No requirement to show how letters are used.
1	**e**		1 mark for correct working (4 carries) 1 mark for answer 01111010 Working showing carries e.g. 01101011 00001111 01111010 1 1 1 1	2	Do not award working mark for conversion to denary and back. Carries must be on the correct values, but could be above, below etc.

Question			Answer	Mark	Guidance
2	a	i	1 mark for each valid IP v4: • 4 groups of denary numbers between 0 and 255 separated by full stops (example v4: 123.16.46.72) v6 • 8 groups of hex numbers between 0 and FFFF separated by colons. Double colon can appear **once** and replaces any number of groups of consecutive 0000 (example v6: 0252:5985:89ab:cdde:a57f:89ad:efcd:00fe) (example v6: F513:8C:2A::999:0000 expanded would be F513:8C:2A:0000:0000:0000:999:0000)	2	V6 Each hex number can be between 1 and 4 digits
2	a	ii	1 mark each to max 2 • (usually presented in) hexadecimal / denary / binary • 6 groups of numbers // 12 (hex) numbers • … each group has paired/2-digit (hex) numbers / 8 bit binary number • 48 bits long • Separated by colons/hyphens • (The first half/part) contains the **manufacturer ID** // (first half/part) identifies the manufacturer • (The second half/part) contains the **serial number** // (second half/part) identifies the device	2	MP1 'numbers' is NE Allow both marks for a valid example. NB '6 pairs of numbers' gets MP2 and MP3. '4 pairs of numbers' gets MP3

2	**b**	**i**	1 mark each for benefit 1 for application to max 4 e.g. • Fast connection/speed // high bandwidth // consistent bandwidth • … e.g. reduce delays at check in // by example for airport • Secure // unlikely to have unauthorised access/hacked // data transmissions are likely to be safe • …e.g. so that data about passengers/staff/aeroplanes is not intercepted // by example for airport • Little interference // little chance of data loss // reliable • … e.g. flight status is received without delay // by example for airport • Long range transmission • … e.g. airport has a large floor area/terminals // by example for airport	4	Mark in pairs. Mark each benefit space to the candidates' benefit. An expansion/application for a benefit can be awarded in the other answer space. 1 benefit and 1 expansion for each answer space. Max 2 marks per answer space. **Max 3** marks if expansions have no direct application to the **airport** and its **computers** connecting using **wired** connections. If the second expansion is not applied, annotate with **^** NOT cost. The question is not a comparison to wireless, but accept answers worded in this way. Fast on its own is NE. 'faster to connect' is NE because this could

					be to set up the connection as opposed to the bandwidth.
2	**b**	**ii**	1 mark each to max 3 e.g. • Staff do not need to be in one-place // movement of staff // can work whilst moving to another part of the airport // can be accessed from any location (in range) • Staff can be more responsive to customers/requests • Allows a larger number of connections/devices // more scalable … • … without the disruption/cost of installing more cables • Some devices do not allow physical/wired connection // allow wider range of type of device (or by example such as vehicles/mobile devices/aeroplanes) • Easier to add/connect more devices • Do not need to find/use a physical connection/wire // can allow you to connect in a place where there isn't a cable/connection • For use as a backup if the wired connection fails	3	Do not award cost on its own. Do not award range on its own. Allow explanation of how a wireless network will benefit the passenger as well as the airport and staff. Allow in reverse if clear, for example wired restricts staff to one location.
2	**c**	**i**	1 mark each for drawing showing: • 5 computers, 2 printers and 1 switch **all clearly labelled** • All devices directly connected to the **switch** // all computers connected to **switch** and each printer to a switch/computer(s) • Only 8 devices **and** no additional connections other than to the switch (or central device, or printers to only one computer each)	3	Allow any type of computer e.g. PC, laptop. Do not accept client for computer. MP1 there must be at least 5 computers, at least 2 printers, at least 1 switch

2	**c**	**ii**	1 mark for benefit e.g. • Easier to add new nodes // easier to setup BOD • Central device can monitor/control **transmissions** • Faster data transmission • Fewer data collisions • One connection/computer breaks the network still works • Less cost of **cables** 1 mark for drawback e.g. • Switch fails the network fails // reliant on a central device (working) // single point of failure • Extra cost of **central device/switch**	2	Speed, cheaper etc. on its own is NE Server is irrelevant. Read whole benefit and award a valid benefit. Read whole drawback and award a valid drawback. Do not award contradictory statements.
2	**c**	**iii**	1 mark each to max 3 e.g. • Connects the devices together in the network // allows devices to communicate in the network • **Receives** data from (all) devices in the star topology • Record/register/store the address of devices connected to it … • …in a table • Uses MAC address of devices • Direct data **to destination** • …if address not recorded transmit to all devices	3	

<table>
<tr><th colspan="3">Question</th><th>Answer</th><th>Mark</th><th>Guidance</th></tr>
<tr><td>3</td><td>a</td><td></td><td>1 mark for function and 1 name for task

<table>
<tr><th>Function</th><th>Task</th></tr>
<tr><td>Memory management // managing memory</td><td>Moves data from secondary storage to RAM</td></tr>
<tr><td>Peripheral management</td><td>• Receiving data from input devices
• Transmitting data to output devices
• Installing/downloading device drivers
• Allows communication from input device / to output device</td></tr>
<tr><td>File management // managing files</td><td>Allows the user to create, name and delete folders</td></tr>
<tr><td>User interface</td><td>• Outputting data to the user
• Receiving input from the user
• Allows user to communicate/interact with/control the computer
• Creating/displaying/allowing interaction with a GUI/command prompt interface</td></tr>
</table></td><td>4</td><td>BOD storage for memory in the first function.

Peripheral: allow input and output devices by example.

File management, do not award folder management.

The task for peripheral management needs to extend 'manage' i.e. 'manage output devices' is NE.</td></tr>
<tr><td>3</td><td>b</td><td></td><td>1 mark for each term

encryption software changes data using a key. If the changed data is intercepted it cannot be understood. This software does not stop the data from being intercepted.

defragmentation software analyses the data on a disk to find files that have been split and stored in separate locations. The split files are moved to be consecutive in storage and the free space is moved together. This does not provide more storage space on the disk, instead it makes the access of the data faster because the read head does not have to move as far to access the next part of the file.</td><td>6</td><td>Encryption
Key
Understood
Defragmentation
Consecutive
Access

Mark first answer in each space.</td></tr>
</table>

Question			Answer	Mark	Guidance
4			**Mark Band 3–High Level** **(6-8 marks)** The candidate demonstrates a thorough knowledge and understanding of a wide range of considerations in relation to the question; the material is generally accurate and detailed. The candidate is able to apply their knowledge and understanding directly and consistently to the context provided. Evidence/examples will be explicitly relevant to the explanation. The candidate is able to weigh up both sides of the discussion and includes reference to the impact on all areas showing thorough recognition of influencing factors. *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.* The answer covers all required elements (legal/ethical, benefits, drawbacks) given in the question about open source **and** proprietary and includes a recommendation with justification. The top of the band makes a clear and structured recommendation to the programmer. **Mark Band 2-Mid Level** **(3-5 marks)** The candidate demonstrates reasonable knowledge and understanding of a range of considerations in relation to the question; the material is generally accurate but at times underdeveloped. The candidate is able to apply their knowledge and understanding directly to the context provided although one or two opportunities are missed. Evidence/examples are for the most part implicitly relevant to the explanation. The candidate makes a reasonable attempt to discuss the impact on most areas, showing reasonable recognition of influencing factors. *There is a line of reasoning presented with some structure. The information presented is in the most part relevant and supported by some evidence.* The answer includes one or more from legal/ethical, benefits, drawbacks for open source **and** proprietary. Alternatively, the answer could have a justified recommendation without clearly referencing the bullet points in the question. **Mark Band 1-Low Level** **(1-2 marks)** The candidate demonstrates a basic knowledge of considerations with limited understanding shown; the material is basic and contains some inaccuracies. The	8 AO2 1a (4) AO2 1b (4)	The following is indicative of possible factors/evidence that candidates may refer to but is not prescriptive or exhaustive: **Indicative Content:** Licence features Open source – (usually free), can access/change source code, redistribute Proprietary – purchase at a cost, cannot access/change code Legal and ethical issues: • Both provide copyright • Open source – allows more people to take code and possibly change to resell, or adapt in their own programs to resell or claim as their own (reverse for proprietary) • Open source – allows more people access to the game because there is likely no cost (reverse for proprietary) Benefits and drawbacks: • Open source – wider customer base, more exposure, users can alter to make it better/fix

			candidate makes a limited attempt to apply acquired knowledge and understanding to the context provided. The candidate provides nothing more than an unsupported assertion. *The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence may not be clear.* The answer is limited to the facts about open source **and/or** proprietary. **0 marks** No attempt to answer the question or response is not worthy of credit		bugs, limited documentation, little financial gain • Proprietary – allows programmer to earn money, gives more control over what happens with the program, usually well tested, more restrictions for copyright, cannot be adapted to meet user needs, Decision: Either would be appropriate, justification needs to be clearly for the scenario

5	**a**	**i**	1 mark for The amplitude of the wave is measured at set intervals	1	2+ ticks = 0 marks
5	**a**	**ii**	1 mark each to max 2 • The number of bits per sample will change // by example e.g. there will be more/less bits per sample • The file size will change // by example e.g. the file size will increase/decrease • There will be a change in the accuracy of each sample/amplitude/sound // by example e.g. more precise amplitudes // by example e.g. a wider/smaller range of amplitudes can be recorded • The quality will change // there will a different amount of distortion // by example e.g. the quality will improve/decline	2	MP3 needs to be clearly a wider range of amplitudes can be recorded i.e. more different values. **Not** that there are more **amplitudes/samples per second.** MP3 – 'more amplitudes can be measured' is BOD, but 'more amplitudes measured per second' is incorrect. BOD 'sound' for 'amplitude' e.g. for MP3 "a larger range of sounds can be recorded."

5	**b**	**i**	No mark for type. Accept the type by example e.g. HDD for magnetic. 1 mark each for each point matching to type given to max 4 Magnetic e.g. • (Usually) cheaper cost to purchase per unit of data • Sufficient/good durability for what is needed • … computer unlikely to move (regularly) // by example • Sufficient/fast speed of access • …no significant delays in storing/reading data • (Long-term) reliable // longevity • …unlikely to need to purchase another //unlikely to break from over-use • High capacity • … e.g. file size of sound files can be large // allows the musician to store files with higher bit depth Solid state e.g. • Cost often equates to magnetic per quantity // not expensive per unit of data • Durable // robust // no moving parts • …so computer can be moved without risk of losing data • Fast **speed of access** of data • … no significant delays in storing/reading data // musician does not have to wait for files to load/store • High capacity // (nearly the) same/higher capacity than magnetic • …file size of sound can be large • Small in physical size • … device is portable // can fit in a smaller type of computer • Produces less sound when running • … so the musician distracted • Requires little/less power (compared to others) • … so running costs are reduced • Drives do not get fragmented files • … drives do not need to be defragged // constant access time	4	MP1 needs to be cost per unit e.g. it costs less per GB than other storage types. Not just 'it is cheap to buy'. Allow reverse argument for each e.g. for magnetic, why they have not chosen solid state. For example: 'magnetic is not as robust but the computer will not be moved' gets 1 mark for the not moving, and 1 mark for solid state's robustness is not required. If there is no type give on line 1. Read the answer to look for a type and then award justification. If there is not type identified anywhere in the answer, 0 marks.
5	**b**	**ii**	1 mark for Optical	1	BOD optic. Do not award an example of optical storage
5	**b**	**iii**	1 mark for 200 000 KB	1	2+ ticks = 0 marks

5	**b**	**iv**	1 mark for the answer 3 GB 1 for working e.g. • 3 * 1000 / 1000 • 3 * 1000 • 3000 / 1000 • 3 / 1000 • 0.003 * 1000	2	Allow 2.9296875 (or approximated) for division by 1024. Allow addition of metadata e.g. 10% added. This can be awarded for both working and answer. Not all of the working needs to be correct to get the working mark. Ignore mention of MB/GB in the working.
6	**a**		1 mark each • **Data/instructions** are fetched from **memory/RAM/primary storage** • **Data/instructions** are stored using the registers // **correct example** of a register storing address/data • **Data/instructions** are decoded // **Data/instructions** are split into opcode and operand • **Data/instructions** are **executed/processed** • **ALU** performs the logical/arithmetic calculations	2	MP4 BOD carried out etc. for executed. Ignore inaccurate references to registers and components (other than MP2 correct example of a register).

6	**b**		1 mark for naming register, 1 for matching purpose • Program counter // PC • **Stores** the **address** of the **current/next** instruction to be fetched // **stores** the **address** of the instruction for the **current/next** FE **cycle** • Memory address register // MAR • **Stores** the **address** of the **current/next** instruction/data to be fetched // **stores** the **address** where data/instruction is to be stored • Memory data register // MDR • **Stores** the **data/instruction** fetched from memory // **stores data/instruction** to be stored in memory // stores the **data/instruction** located in the **memory** location in the **MAR** • Accumulator // ACC • **Stores** the **result** of calculations // **stores data currently** being processed / by example // **stores** the result from the ALU	4	Careful that the purpose is not an action such as fetches, takes, retrieves. Read full purpose and award a correct point Accept • Current instruction register//CIR//Instruction register//IR • Stores the instruction currently being executed BOD memory buffer register for MDR. If there is no register but the register is given in the purpose column, award the purpose if accurate. If the answer in the register column is incorrect, do not mark purpose. For PC and MAR, accept 'pointer' for storing address Accept memory address, memory data
6	**c**		1 mark each to max 3 • Clock speed • Cache size • Number of cores	3	'clock' 'cache' 'speed' 'cores' on its own is NE.

7	**a**		1 mark each to max 3 • Has a specific purpose // it only performs one/limited task // dedicated to the Follow Me system • Built within a larger device/car • **Dedicated**/specific/its own hardware / sensors • Has a microprocessor • Built-in operating system/software // software is all in firmware/ROM • …it's instructions/operation does not/is hard to change/update • It is a control system // it is automated	3	MP2 BOD reference to it being 'built into' 'something' reasonable
7	**b**	**i**	1 mark each to max 2 • Start-up instructions // BIOS // bootstrap // where to find the OS • Firmware // Program/instruction to run the Follow Me system // Instructions for operation • Example of data being stored e.g. the maximum speed, the min distance • Operating System // OS	2	MP2 'programs' on its own is NE MP3, Allow two marks for examples of instructions or data. For example both marks can be given for: 1 – The maximum speed 'Follow Me' can operate 2 – The minimum distance the car in front can be
7	**b**	**ii**	1 mark each to max 3 e.g. • Current distance from car in front • Set distance from car in front • Current speed of vehicle • Current speed of vehicle in front • Reading from sensor • Driver actions (e.g. moving wheel/braking) • Direction the car (in front) is travelling (e.g. turning)	3	'speed' or 'distance' on its own is NE BOD reference to a camera taking images of what is in front
7	**b**	**iii**	1 mark each to max 2 • Only stores a small amount of data in **RAM** // only stores specific/few items in **RAM** • …unlikely to run out of **RAM** // there is enough space in **RAM** • No secondary storage to use/needed as VM • Few/one program/instructions running at a time // no memory intensive tasks • Dedicated hardware will be optimised for system // **RAM** is designed to meet the system's requirements	2	

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