|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  | | --- | --- | | **Computer Science (9-1)**  LAN and WAN 1 |  | | Please note that you may see slight differences between this paper and the original.  Candidates answer on the Question paper.  **OCR supplied materials:** Additional resources may be supplied with this paper.  **Other materials required:** •   Pencil •   Ruler (cm/mm) | **Duration:** Not set | |  | | |  |

## INSTRUCTIONS TO CANDIDATES

•   Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.  
•   Use black ink. HB pencil may be used for graphs and diagrams only.  
•   Answer **all** the questions, unless your teacher tells you otherwise.  
•   Read each question carefully. Make sure you know what you have to do before starting your answer.  
•   Where space is provided below the question, please write your answer there.  
•   You may use additional paper, or a specific Answer sheet if one is provided, but you must clearly show your candidate number, centre number  
    and question number(s).

## INFORMATION FOR CANDIDATES

•   The quality of written communication is assessed in questions marked with either a pencil or an asterisk. In History and Geography   
    a *Quality of extended response* question is marked with an asterisk, while a pencil is used for questions in which *Spelling, punctuation and  
    grammar and the use of specialist terminology* is assessed.  
•   The number of marks is given in brackets **[ ]** at the end of each question or part question.  
•   The total number of marks for this paper is **10**.  
•   The total number of marks may take into account some 'either/or' question choices.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | |  |  | | --- | --- | |  |  | | **1.** | Zoe is organising a LAN-party. Her friends will each bring a computer to the party so that they can play games against each other.  Describe what is meant by a Local Area Network (LAN).        **[2]** | | |
| |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | |  |  | | --- | --- | |  |  | | **2(a).** | A company, OCR Supermarkets, has supermarket stores throughout the country. The computers for each store connect to the central office using a Wide Area Network (WAN).  Identify **two** differences between a WAN and a LAN (Local Area Network).   |  |  | | --- | --- | | Difference 1: |  |      |  |  | | --- | --- | | Difference 2: |  |       **[2]** | |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | |  |  | | --- | --- | |  |  | | **(b).** | OCR Supermarkets use a client-server network to connect the checkout computers to the store's server.  Describe **two** benefits to OCR Supermarkets of using a client-server network instead of a peer-to-peer network.   |  |  | | --- | --- | | Benefit 1: |  |        |  |  | | --- | --- | | Benefit 2: |  |       **[4]** | | |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | |  |  | | --- | --- | |  |  | | **3.** | A school has all of its computers in a local area network (LAN).  State **two** benefits of a LAN.  1      2      **[2]** | | |

**END OF QUESTION paper**

# Mark scheme

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Question** | | | **Answer/Indicative content** | **Marks** | **Guidance** |
| 1 |  |  | * Computers are connected to each other * Restricted to a small geographical area / site / other suitable example * Dedicated wired or WiFi connections | 2 | For the first bullet point candidates should be describing a network – just the idea that computers are connected to “something” is not enough.  For the third bullet point, just “connected by cables” is not enough as there is no indication these are dedicated cables for the network.  **Examiner's Comments**  Required candidates to describe what is meant by a Local Area Network, where one mark could be for describing each of the concepts “local area” and “network” in this context. Candidates who did not gain both marks often reused these terms in their answers instead of describing them. |
|  |  |  | **Total** | **2** |  |
| 2 | a |  | * WAN is over a large geographical area / needs to transmit over a large distance / a LAN is over a small geographical area. * WAN uses external hardware / infrastructure / cables / network / LAN has its own infrastructure / cables / network / hardware due to distance / practicalities | 2 | NB Examples of infrastructure / hardware are allowed for WAN e.g. satellite, phone lines, Internet Allow LAN as Ethernet for second bullet   NOT wide area for WAN   **Examiner's Comments**  Many candidates were able to correctly identify the difference in size between a WAN and a LAN. The better candidates also identified the difference in hardware, or ownership of the hardware used. |
|  | b |  | 2 marks per benefit  E.g.   * All files can be stored centrally * … so workers can access files from any computer * … all computers can update the central database / file * … Peer-to-peer files might be stored on their own computers / spread across many computers * Backups are central * … all data is backed up each time * … individual computers do not need to backup their own data * … Peer-to-peer may need to perform their own backups. * Monitor clients * …to ensure they are working correctly * Upgrade software centrally * …so you do not have to install on each computer individually * Central security (antivirus / firewall) * … do not need to install protection on all computers * …Peer-to-peer individual security may need to be installed on individual computers | 4 | Do not allow: -easy to share data -“more secure”   **Examiner's Comments**  This question was not answered well, with few candidate able to demonstrate an understanding of client-server and peer-to-peer networks. The most common response was the central storage of data, although this was often not expanded to explain why this is a benefit. |
|  |  |  | **Total** | **6** |  |
| 3 |  |  | e.g.   * Can share files / can work collaboratively on same files * Can share hardware resources / suitable example * Can access their files from any computer / classroom * Can work together from different computers using instant messaging * Centralised deployment of software to all computers | 2 | **Examiner's Comments** This question was intended to be fairly straightforward – standard answers for the advantages of having a network in a context in which most of them are familiar. Candidates who did not get full marks here either gave answers that were too vague such as “it allows the computers to communicate with each other” – which is just a definition of what a network does, not an advantage – or they compared a LAN to a WAN. The weakest candidates even tried their luck with very generic answers like “it’s cheaper,” demonstrating little understanding of the actual subject content being tested. |
|  |  |  | **Total** | **2** |  |