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| **Q** | **Answer/Indicative content** | **Marks** | **Guidance** |
| 1a | AR lets the user experience the real world….  …. VR removes the user from that real-world experience/simulated experience. | 1 | Must identify the difference to achieve the mark. |
| 1b | Any two from:   * Speech/Voice * Touch * Gesture * Biometrics | 2 | Accept references to interface as it’s a way of interacting with the device such as: graphical user interface (GUI), touch screen interface (TSI), Voice driven interface, Natural language interface.  Do not accept Command line interface as this would not be appropriate for the use of a smartphone.  Do not accept keyboard or mouse as it’s not relevant to the smartphone. |
| 1c | 1 mark for advantage and 1 mark for disadvantage  Advantages:   * No special commands to learn * Very intuitive and easy to use. * The use of menus allows users to follow step-by-step.   Disadvantages:   * Some users may get overwhelmed by the number of menus. * The menu can take up a large part of the screen (which makes it difficult to use other applications.) | 2 | Any part enclosed in brackets is not a requirement but it makes for a better answer. |
| 2a | 1 mark per bullet   * Internet connection method (using ADSL or SDSL technology) * Use of FTTC (Fibre to the cabinet) * Connection comes directly from the internet provider. | 2 |  |
| 2b | 1 mark per bullet to max 2   * Directs packets/data to destination // directs packets/data in a network * Receives packets/data from the network/Internet * Forwards packets/data to other computers on the network/Internet * Connects (different) networks together // e.g. joins home network to Internet * Has (public) IP address for LAN * Designates (private) IP addresses to network nodes |  | Bullet 1 needs to refer to the router directing the destination e.g. it is making a decision/choice on where to send it.  Bullet 4 - it has to be referring to the connection between the Internet and home network, or forwarding of data between them. Just referring to accessing Internet is not enough.  Do not allow information for data/packets |
| 2c | 1 mark per bullet   * It offers high bandwidth which is needed for streaming and playing online games. * It offers enough email addresses for the whole family. * It offers parental controls which allow Mr and Mrs Jones to protect their children. * It offers unlimited download so the family will not be charged. | 3 | If no context provided, award maximum of 2 marks. |
| 2d | 1 mark per bullet   * Blocks connections between computers on the network (and your own) * Set rules about which computers can communicate with yours * Set rules about which software that can access the internet. * Prevents hackers from installing malware on the computer. | 3 |  |
| 2e | 1 mark per bullet   * Wi-Fi * Mobile communications (3G/4G/5G) * Bluetooth | 3 |  |
| 2f | Any two from:   * To fix or patch bugs * To add new features/functionality * To improve performance/functionality/user interface | 2 |  |
| 2g | 1 mark per bullet   * Items she downloads will be stored online/remotely * Files available to all devices using an internet connection. * No need to connect devices for synchronisation. | 2 | Accept responses where students state all devices can access file as long as they have Wi-Fi. |
| 3a | |  |  | | --- | --- | | **Statement** | **True / False** | | A peer-to-peer network has one central controlling computer. | False | | Peer-to-peer networks are easier to set up than client-server networks. | True | | Peer-to-peer networks allow individual devices to share files between each other. | True | | Peer-to-peer networks are commonly used in large organisations. | False | | It is easier to implement security procedures throughout a client server network than a peer to peer network. | True | | 5 | Correct answer only |
| 3b | 1 mark per bullet   * Computer hardware/software that provides functionality…. * for other programs or devices (known as clients.) | 2 |  |
| 3c | 1 mark each   * Hub * Switch | 2 |  |
| 3d | 1 mark per bullet   * Browser requests access to a host using domain name/URL.. * ….(client) computer contacts the DNS…. * ….DNS contains database of domain names…. * ….if it exists then it returns the IP address to the computer. | 2 |  |
| 3e | * Easier (for humans) to understand | 1 |  |
| 3f | |  |  | | --- | --- | | **Part** | **Example** | | Scheme | http:// | | Second level domain | **dchigh** | | Sub directory | **StudentUser** | | Subdomain | **files** | | Top level domain | **co.uk** | | 4 | 1 mark per row |
| 3g | 1 mark per bullet max (mix and match)   * User enters a series of keywords into a search bar… * ….a web crawler searches around the database of websites (index) for matching words. * uses an algorithm to return the best results including those search terms. * …. results are ranked in order… * …. best//most relevant results are displayed on the user’s computer. | 4 |  |
| 4a | 1 mark per bullet   * Interface between the hardware and applications * Program that runs application programs and computer hardware * Computer software that helps the computer to run. | 2 |  |
| 4b | 1 mark per bullet   * A computer design that allows the user to interact with the computer. * Human-computer interaction. * A visual for human to interact with the computer. * Graphical or textual or auditory information that a program presents to the computer user. | 2 |  |
| 4c | |  |  |  | | --- | --- | --- | | 1. Memory Management |  | 1. Allows a computer’s external devices to communicate with the computer system | | 1. Peripheral Device Management |  | 1. The administrative feature of a computer system to control user access into a network | | 1. User Management |  | 1. Used to allocate free memory to programs that need it | | 1. File Management |  | 1. A system that is used by the operating system to organise and keep track of files. | | 4 | 1 mark each |
| 5a | * When data from **all files** and folders are backed up. | 1 |  |
| 5b | * Stores the **changes made since** the last backup. | 1 |  |
| 5c | Any two from:   * Takes less time to backup. * Takes up less memory. * Allows for more frequent backups. | 2 |  |
| 5d | 1 mark for method, 1 mark for explanation   * Differential backup (1)…. * ….. files that have been created or changed since the last full backup are copied (1) * GFS//Grandfather-Father-Son (1)…. * ……backup done monthly, weekly and daily.   ……data backed up and held on and off site. | 4 |  |
| 5e | * Defragmentation * Compression | 2 | Do not accept lossy and lossless compression.  Accept other utilities: Disk partition, Disk clean-up. |
| 5f | 1 mark per bullet   * Step by step guide on how the business will recover… * …. from loss of data/hardware/staff/buildings * by example (hacking, natural disasters (e.g. fire, flood) | 3 |  |
| 6a | 1 mark per bullet   * Specifically designed to meet customer’s needs…. * …. provides more functionality than applications software * …..which might not include features useful to Big D’s | 3 | BP1 accept the software is tailor-made. |
| 6b | 1 mark per bullet   * output is measured and 'fed back'… * ……to become part of the input. | 2 |  |
| 6c | 2 marks for each stage  1 mark for each stage if no context provided.  Each stage mentioned with no context throughout (max 6 marks)  **Investigation**   * Feasibility report to check suitability of the new system… * …. how much will the new system cost? * …. budget/budgetary constraints * …. staff need re-training//additional skills * …. hardware and software required. * Business documents which could relate to how the current system works… * ….. to outline the current processes followed by employees * Interviews with current employees…. * …..to gain feedback about the current system * Observe staff using the system in real time…. * ….make notes of what is working well and what doesn’t. * Questionnaire to receive feedback from current users… * ….to receive data on a much larger scale/easy to distribute.   **Analysis**   * Decision table to identify a system will respond to different actions…. * …. setting rules/conditions/actions such as processing of a discount/price of an item that is different in size (small/medium/large) * …. any other reasonable example * Data dictionary that contains records of data within a database…. * …. checking metadata such as field, data type, data format. * …..accept examples (e.g. use of a date/time format to store date and time the order was processed by the restaurant.) * Data flow diagram which provides detail of each process in the system… * ….check inputs and output of the new system (external entity) * ….check data stores in which the data is saved (e.g. price of the final order) * …. any other reasonable example.   **Design**   * The hardware required for the new system…. * ….. Computers/Laptops/Tablet devices to take and process orders * The software required for the new system... * ….to perform a set of specific tasks (e.g. selecting items on the menu when placing the order) * How to adjust the network infrastructure to accommodate a new system * …. Investment in network hardware such as: switches, servers, routers, cabling (allow customers to interact with the ordering system) * Planning the project to identify the resources required… * …employing more staff to be involved in the development of the new system. * …any other reasonable example. * Identify the security methods put in place to keep customers details stored… * …..using data capture methods for the system/data inputs to the system/data outputs from the system/data processing within the system/the file structure for data storage/how information is accessed and indexed or sorted. * Testing to see if the system will work as intended… * …. this is to avoid processing an order with incorrect items//incorrect price * …accept examples such as test data (e.g. erroneous/boundary/valid inputs)   **Implementation**   * Big bang/direct so the new ordering system is implemented immediately…. * …. this would be available to use from the start/Big D’s can start to take orders. * Phased to use parts of the new system but old system remains in use…. * …the staff can be gradually introduced to the new system. * Pilot where certain department would use the new system… * …this could be trialled by the day or night team/trial system on a quiet weekday. * Parallel to run the new system alongside the old system… * …. staff can continue to use the old system if the new system doesn’t work.   **Maintenance**   * Paper documentation that provides a short overview of how the new system works... * …a manual could be made available to staff if they encounter issues when processing orders. * On-screen documentation that provides a how to guide for the new system… * …could use a webpage with a FAQ section//video tutorials on how to use the system. * …any other reasonable example. * Technical documentation that includes source code with comments… * …this can be used by technical staff to fix problems that cannot be done by the staff at the restaurant.   **Evaluation**   * Whether the finished solution meet its requirement/solve the problem… * …. identification of problems encountered throughout the entire process… * …any further maintenance and support required. | 12 | AO2  **Band 4: 10 – 12 marks**  An excellent explanation, which shows:   * thorough knowledge and understanding of each stage of the systems development life cycle. * an excellent description of how it applies to Big D’s * Writing is very well structured and organised, using accurate grammar, punctuation and spelling. * A range of specialist terminology is used with accuracy.   **Band 3: 7-9 marks**  A good explanation, which shows:   * Generally secure knowledge and understanding of each stage of the systems development life cycle. * A good description of how it applies to Big D’s * Writing is generally well structured and organised, using mainly accurate grammar, punctuation and spelling. * Specialist terminology is used with accuracy.   **Band 2: 4-6 marks**  A basic explanation, which shows:   * Some knowledge and understanding of each stage of the systems development life cycle. * A basic description of how it applies to Big D’s * Writing shows some evidence of structure though some errors in grammar, punctuation and spelling affect meaning. * Basic use of specialist terminology.   **Band 1: 1-3 marks**  A limited explanation, which shows:   * Limited knowledge and understanding of each stage of the systems development life cycle. * A limited description of how it applies to Big D’s * Some errors in grammar, punctuation and spelling, which affect clarity of communication. * Limited use of specialist terminology.   **0 marks**   * Response not creditworthy or not attempted |