MVDS Computer Science Start of Year 11 Questions

	Describe the following term	Answer
1	Describe the term: Embedded System	A computer within an everyday object
2	Describe the term: CPU Cores	A multi-core processor is a single component with two or more independent actual CPUs
3	Describe the term: Clock Speed	Measured in Hertz, the clock speed is the frequency at which the internal clock generates pulses. The higher the clock rate, the faster the computer may work.
4	Describe the term: Fetch-Decode-Execute Cycle	The complete process of retrieving an instruction from store, decoding it and carrying it out.
5	Describe the term: CPU	Central Processing Unit: "The main part of the computer, consisting of the registers, ALU and control unit."
6	Describe the term: PC	Program Counter: "Holds the address of the next instruction. Step 1 of the fetch, decode, execute cycle."
7	Describe the term: Accumulator	Holds the result of calculations
8	Describe the term: ALU	Arithmetic Logic Unit: "Performs calculations
9	Describe the term: CU	Control Unit: "Decodes instructions. Sends signals to control how data moves around the CPU."
10	Describe the term: MAR	Memory Address Register: "Holds the address of data ready for use by the memory data register.
11	Describe the term: MDR	Memory Data Register: "Holds the data fetched from or to be written to the memory. Step 3 of the fetch, decode, execute cycle."
12	Describe the term: Cache	Memory in the processor providing fast access to frequently used instructions and data.
13	Describe the term: RAM	Random Access Memory - Volatile memory which requires power to run, and contains the operating system, and the programs and data which are currently running

15	Describe the term: ROM	Read only memory - Non-Volatile memory which contains the BIOS / bootstrap program
16	Describe the term: BIOS	Basic Input & Output System - Loads the operating system
17	What does Non-Volatile mean	Permanent
18	What does Volatile mean	Temporary
19	What is an OS	Operating System
20	What is Firmware	Permanent software programmed into RAM in hardware - embedded system
21	What is Primary Storage	Main memory
22	What is Secondary Storage	Storage for files. images, videos applications/programs when not in use.
23	What is a Hard Disc	A rigid non-removable magnetic disk with a large data storage capacity
24	What is Virtual Memory	The part of the hard drive which is assigned as 'RAM' when the RAM is full - Much slower than RAM
25	What is Flash memory	is an electronic (solid-state) non-volatile computer storage medium that can be electrically erased and reprogrammed.
26	What is Magnetic storage	A form of non-volatile memory. A read/write head is hovered over magnetic platters
27	What is Optical storage	A form of non-volatile memory. A laser beam buns pits and lands into the medium to write it. To read it, the laser beam is bounced off the surface,
28	What is Solid State storage	A form of non-volatile memory based on electronic circuits (made of silicon microchips)with no moving parts
29	Give an example of Magnetic storage	Floppy disk, Hard disk drive, Magnetic tape
30	Give an example of Optical storage	DVD-ROMs, CD-ROMs
31	Give an example of Solid state storage	USB memory sticks, Memory cards
32	Advantages of	- Cost-effective

	HDDs/Magnetic Storage	- Fast read/write speed - Can store vast quantities of data for cheaper prices - Portability: Internal (not portable), External (will fit in a large pocket) - Reliable: can last for years and an infinite number of read/write cycles
33	Disadvantages of HDDs/Magnetic Storage	- Not durable - Slower access speed than SSD - Generates a lot of heat which can damage it - Uses much more power than an SSD - Can be very loud - Much larger than an SSD - Slower boot up time (30-40 seconds)
34	Advantages of SSDs/Solid State Storage	- Fast access speed: up to 30% faster than HDDs - No noise - Generates less heat as no moving parts - Durability - Portability - Uses less power than an HDD - Quicker to boot up (10-13 seconds on average)
35	Disadvantages of SSDs/Solid State Storage	- Very expensive for the amount of storage bought - Smaller storage capacity than HDDs
36	Why do we need virtual memory	If the RAM is full part of the hard drive is used instead. This is much slower because the instructions have to be copied back into RAM before the CPU can fetch decode and execute them.
37	What storage device is suitable for back-up of files	Magnetic tape
38	What storage device is suitable for music or films	Optical
39	What storage device is suitable for storage in a portable device like a mobile phone	Solid state
40	Describe the term: LAN	Local Area Network: "Small geographic area. All the hardware for the LAN is owned by the organisation using it. Wired with UTP cable, fibre optic cable or wireless using routers and Wi-Fi access points."
41	Describe the term: WAN	Wide Area Network: "Large geographic area. Infrastructure is

		hired from telecommunication companies who own and manage it. Connected with telephone lines, fibre optic cables or satellite links."
42	Describe the term: Client-Server Network	"A client makes requests to the server for data and connections. A server controls access and security to one shared file store. A server manages access to the internet, shared printers and email services. A server runs a backup of data."
43	Describe the term: Peer-to-Peer Network	"All computers are equal. Computers serve their own files to each other. Each computer is responsible for its own security and backup. Computers usually have their own printer."
44	Describe the term: Stand-Alone Computer	"A single computing device not connected to any other on a network, either wired or wireless."
45	Describe the term: Router / Switch	"In packet-switched networks such as the internet, a router is a device or, in some cases, software on a computer, that determines the best way for a packet to be forwarded to its destination."
46	Describe the term: The Cloud	"Remote servers that store data that can be accessed over the internet. Advantages: Access anytime, anywhere from any device. Automatic backup. Collaborate on files easily."
47	Describe the term: Transmission Media	"The physical media over which data is transmitted, e.g. twisted copper cable, fibre optic etc. "
48	Describe the term: NIC	Network Interface Controller: "A computer hardware component that connects a computer to a computer network."
49	Describe the term: Star Network and give advantages	Each device is connected by an individual cable directly to the switch / hub very reliable - if one cable or device fails then all the others will continue to work high performing as no data collisions can occur
50	Describe the term: Mesh Network and give advantages	All workstations and devices are connected directly to one another if one node fails other nodes are fully functional The network is able to heal itself around the faulty nodes as long as other nodes can support the network. is considered highly scalable. It gives room for the addition of another node within the network without affecting its

| | | functionality. |
| | | This will improve the network's capability to handle more traffic. |