BACS1024 - RDS2(S1)G3 - Tutorial

Q1	**i) Hardware** elements: Physical mechanisms that process data by executing instruction, storing and moving data. **Example**: Keyboard **ii)Software** elements:. Software is a set of instructions, data or programs used to operate computers and execute specific tasks. Software can be categorized as system software and application software **Example of system software**: Windows, Mac, Linux **Example of application software:** Microsoft Word, Excel, PowerPoint etc. **iii)Communication** elements: Hardware & Software that facilitate sharing, locally & remotely data accesses.Example: modem **iv) Data** elements: Fundamental representation of facts and observations. **Example**: user's data. User uses computer keyboard (hardware) to input password (data) to the computer system through Google Chrome (software) and send to request login to email account via modem (communication device).
Q2	**Volatile** Memory is used to store computer programs and data that CPU needs in real time but this data is <u>not permanently</u> stored which means it will be <u>erased</u> once the computer is switched off. And Volatile memory is also <u>faster</u> than non-volatile memory. Examples of <u>RAM</u> and <u>Cache memory</u> are volatile memory. While **non-volatile** memory is <u>static</u> which means that the data that is stored in the memory is <u>permanent</u> and remains in the computer even if the computer is switched off but it is <u>slower</u> than the volatile memory. Examples of non-volatile memory are <u>HDD and Rom</u>.
Q3	The user interacts directly with hardware for the human *input* and *output* such as displays, e.g. through a graphical user interface. The user interacts with the computer over this software interface using the given input and output (*I/O*) hardware. For example, the User will see the output of the computer which is the user interface from the monitor screen whereas the user will input the data that needs to be entered into the computer with the keyboard or selecting something in the computer by clicking the mouse button.
Q4	**System Software :** It is responsible for managing files, load and executing the programs on a computer. Low level languages are used. If without system software, the system cannot run.

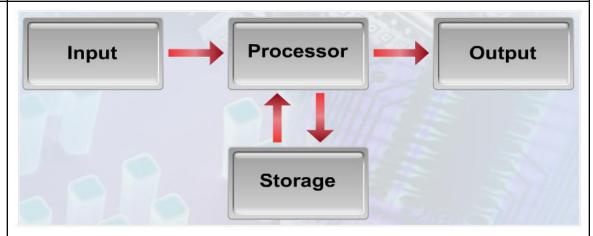|	
	For example, operating system like macOs, Linux and Microsoft Windows **Application Software :** It is responsible to perform functions, tasks, activities for the benefits of the users. High level languages are used. If without application software, the system still can run. For example, Word processing software, Spreadsheets Software and Photoshop. Both of them consist of the step by step instruction to tell the hardware what to do and how to do (a.k.a = also known as) program.
Q5	Agree. Because bus topology is inexpensive and easy to install. Nodes can be attached or detached from the bus without distributing the network. Besides, the bus transmits data in both directions.
Q6	 Information Processing Cycle (IPC) provides an important basic tool for system operation. The sequence of events in processing information, which includes input, processing, storage and output. These processes work together and repeat over and over. For example: Input = enter 5 , 10 (enter the data into the system) Example of the input device = keyboard Process = the system will add up two of the input number (addition) - (performing operation on the data) Output = and it will be display 15 which 5 + 10 - (presenting the results) Example of output device = monitor Storage = the system will store the data for future use

Q7	I would like to choose client/server as the most appropriate network architecture to implement a network system in my hostel with 8 hostel mates because number of the network clients are allowed to send files or data to server at the same time and they may request to the server who manage the data to access those resources at the same time within multiple users. Meanwhile, this will help them to increase their efficiency on sending packets of file by not waiting for others to queue instead of a peer-to-peer network need to wait for the status is idle and then the next person is allowed to share files toward each other. Recommended Peer to peer. Justification: So that every member could have equal processing power and not depend on others. The power off of one member's PC will not affect others. Every member could send / receive data without restriction