Chapter # 2 – Hardware and Software

Specimen 2017

3   Giving examples, explain what is meant by:

(a)   application software

Answer:

3(a)	Award 1 mark for each correct answer up to a maximum of 3. **Three** from: Application software is a set of one or more programs designed to carry out operations for a specific application… …other than system maintenance functions Types of application software include spreadsheet, database, DTP, word processing software (must have at least two)	3

(b)   system software.

Answer:

3(b)	Award 1 mark for each correct answer up to a maximum of 3. **Three** from: System software refers to the operating system and all utility programs that manage computer resources System software includes BIOS, compilers, interpreters, system utilities (must have two) System software is a type of computer program that is designed to run a computer's hardware and application programs System software is the interface between the hardware and user applications	3

4 Describe the characteristics of a gesture based user interface.

Answer:

| 4 | Award 1 mark for each correct answer up to a maximum of 3.

Three from:

Provides an interface that does not need the support of a device
Gesture interfaces are graphical user interfaces which accept input in a form of hand gestures
It is a virtual world to which the user is connected digitally
Can point a finger at the computer screen so that the cursor will move accordingly | 3 |

7 A head teacher wishes to use a computer to create a newsletter which will keep parents up to date with events at the school.

   (a) Name **two** software types that he could use.

Answer:

| 7(a) | Award 1 mark for each correct answer up to a maximum of 2.

Two from:

Use a word processor (to produce a newsletter)
Use a desktop publishing package (to produce a newsletter)
Use a web authoring package (to produce web pages to show the events)
Use presentation software (to produce a slide show to show the events) | 2 |

Question 7, Part (b)

(b) Compare and contrast the use of these software types.

Answer:

7(b)	Award 1 mark for each correct answer up to a maximum of 6.	6
	Only the **two** packages named in **7(a)** can be compared.	
	Six from:	
	Word processor versus DTP DTP software includes the key elements involved in producing these products... ... such as typesetting, page layout and graphic design DTP software is a little more difficult to use than regular word processing software because there are so many different options to consider DTP is used by graphic designers Arrangement of the text on the word processing page is largely linear Word processing has few options to set text precisely where the user wants DTP packages have a wider selection of import and output options for various forms of content DTP packages are better able to combine text and graphics in a single document	
	Presentation vs DTP/WP You can use video/animations in presentations You can have sound in presentations Ink/paper is more expensive than slideshow presentation Easier/less costly to update Cannot be sure everybody would see presentation/can deliver newsletter to every home/might have presentation at an inconvenient time for some parents Producing presentation would take longer than WP document You have to pay someone to deliver hard copies	

Question 7, Part (b)

Answer (Continued):

Presentation vs DTP/WP
You can use video/animations in presentations
You can have sound in presentations
Ink/paper is more expensive than slideshow presentation
Easier/less costly to update
Cannot be sure everybody would see presentation/can deliver newsletter to every home/might have presentation at an inconvenient time for some parents
Producing presentation would take longer than WP document
You have to pay someone to deliver hard copies

Web pages vs DTP/WP
You can use video/animations in web pages
You can have sound on web pages
Ink/paper is more expensive than web pages
Easier/less costly to update
Cannot be sure everybody would see website/can deliver newsletter to every home
Producing web pages would take longer than WP document
You may have to pay someone to deliver hard copies
You have to pay for an ISP
You may have to pay extra to host a website

Web pages vs presentation
With presentation can know exactly which parents have been informed
With web pages have to pay for an ISP
You may have to pay extra to host a website
Presentation is easier/less costly to update
Less information on a slide than a web page
With web pages parents can respond interactively
Fewer skills needed for presentation

9   Evaluate the differences between compilers and interpreters.

Answer:

| 9 | Award 1 mark for each correct answer up to a maximum of 4.

Four from:

The compiler's conversion is made just once and after that the same binary code can be distributed to the user's machines where it can be executed without further translation thereby saving time compared to an interpreted program
Whereas an interpreted program is distributed as source code so it needs to be translated in each final machine, which takes more time than using compiled code…
…however this does make the program distribution independent of the machine's architecture whereas the compiled version will only run on machines with a specific processor's architecture, thus making it less portable than interpreted code
Compiled object code makes it easier to protect intellectual property as the machine code is difficult to understand whereas interpreted code can easily be read and copied by humans
It generally takes longer to run a program under an interpreter than to run the compiled code because the interpreter must analyse each statement in the program each time it is executed…
…but it can take less time to interpret it than the total time required to compile and run it
Compiler generates the error report after the translation of the entire page while an interpreter will stop the translation after it gets the first error making it easier to debug
An interpreter uses less memory as source code only has to be present one line at a time in memory whereas with a compiler all the execution code needs to be loaded into memory | 4 |

June 2017 – P11 & P12

6 High-level languages can be translated using a compiler or an interpreter.

    (a) Describe the features of a compiler.

Answer:

6(a)	**Three** from: Translates the whole program as one complete unit Creates an executable file Is able to report on a number of errors in the code after compilation Does not need to be present in order to run the code Can optimise source code to run as fast or as efficiently as possible.	3

    (b) Describe the features of an interpreter.

Answer:

6(b)	**Three** from: Translates each line of source code into an intermediate stage and then executes that line/statement Reports on errors as lines of source code are entered Only a few lines of source code needs to be in memory at any one time Some interpreters execute code within a 'virtual machine'… …these have been designed to disallow code from directly accessing the computer.	3

June 2017 – P13

4 Sheila has just become manager of the ticketing department in an airport. She uses computers to accept payments and check passengers' passports.

(a) Evaluate the input devices which Sheila might use, including their specific use in this system.

Answer:

4(a)	This question to be marked as levels of response:	8
	Level 3 **(7–8 marks)** Candidates will explain both the advantages and disadvantages of different input devices using relevant and appropriate examples. The information will be relevant, clear, organised and presented in a structured and coherent format. There may be a reasoned conclusion/opinion. Specialist terms will be used correctly and appropriately. **Level 2** **(4–6 marks)** Candidates will explain the advantages and disadvantages of input devices although development of some of the points will be limited to advantages or disadvantages, examples used will be for the most part relevant. For the most part, the information will be relevant and presented in a structured and coherent format. There may be a conclusion/opinion. Specialist terms will be used appropriately and for the most part correctly. **Level 1** **(1–3 marks)** Candidates will only give advantages/disadvantages of input devices, examples, if used, may lack relevance. Answers may be in the form of a list. There will be little or no use of specialist terms. **Level 0** **(0 marks)** Response with no valid content.	

Question 4, Part (a)

Answer (Continued):

Answers may include:

The use of a keyboard to type in the amounts of money to be paid and recording details of the customers
The advantage of keyboards is that experienced users can enter details more quickly than other methods
Difficulty of entering amounts other than selecting numbers using a mouse
Disadvantage is that data is slow to enter compared with DDE

Touch screen could be used to enter amounts or customer details
Quicker to enter data than using a mouse
May cause screen to be stained and make viewing difficult

RFID reader can be used to enter details from passport
Quicker than manually entering data
Readers are expensive to buy initially

Uses chip reader to read credit/debit cards
More reliable than reading magnetic stripe
Quicker than typing in details from the card
Contactless card readers speed up transactions as no PIN is required.

Question 4, Part (b)

(b) Sheila stores all the records of her transactions and lists of passengers from each flight on a hard disk. She is considering replacing her hard disk drive with a solid state drive (SSD). Evaluate the use of a hard disk drive compared with an SSD.

Answer:

4(b)	*Evaluation based on:*	8
	Advantages Hard disks tend to have higher storage capacities than SSDs Hard disk drives still cost less per gigabyte than SSDs HDDs last longer than SSDs … …the NAND flash used in SSDs can only be used for a finite number of writes The choice and availability of SSDs is still limited *Disadvantages* Hard Disk Drives are more susceptible to shock and damage… … as they consist of various moving parts SSDs have faster data transfer rate SSDs have quicker boot ups… …can have almost instantaneous data access… …HDDs data access speed is dependent on how close the data is to the read/write heads… …while all parts of the SSD can be accessed at once SSDs use significantly less power at peak load than hard drives… …SSD's energy efficiency can deliver longer battery life in laptops With no moving parts SSDs run at near silent operation… …unlike whirring hard disk drives.	

11 A manager of a small business wants to update her computer system. When considering which software to use, she has to choose between custom written software and off-the-shelf software.

Describe what is meant by these two types of software.

(a) Custom written:

Answer:

11(a)	**Three** *from:*	3
	Software that is specially developed for a specific company/business It is made to accommodate that customer's particular preferences and needs Written by programmers to solve specific problems Owned by the business that commissions it.	

(b) Off-the-shelf:

Answer:

11(b)	**Three** *from:*	3
	Software that is ready-made and already exists It is available to all businesses and companies It is owned by the company that created it Has to be adapted to fit the business that has purchased it.	

November 2017 – P11 & P12

1   (a)   Tick the **most accurate** statement about the use of a compiler.

	✓
A compiler executes a high-level program one statement at a time before translating the next statement.	
A compiler converts object code into source code.	
A compiler translates machine code into a high-level language program.	
A compiler often produces a separate object code program.	

[1]

Answer:

1(a)			1
	A compiler executes a high level program one statement at a time before translating the next statement.		
	A compiler converts object code into source code.		
	A compiler translates machine code into a high level language program.		
	A compiler often produces a separate object code program.	✓	

Question 1, Part (b)

(b) Tick the **most accurate** statement about the use of a linker.

	✓
A linker executes a high-level program one statement at a time before translating the next statement.	
A linker takes one or more source code files and combines them into a single executable file.	
A linker takes one or more object files and combines them into a single executable file.	
A linker is used in conjunction with an interpreter.	

[1]

Answer:

1(b)			1
	A linker executes a high level program one statement at a time before translating the next statement.		
	A linker takes one or more source code files and combines them into a single executable file.		
	A linker takes one or more object files and combines them into a single executable file.	✓	
	A linker is used in conjunction with an interpreter.		

4   Jasvinder has just become manager of the ticketing department in an airport. Part of her job is to provide tickets for passengers who have decided to fly at the last minute. She uses computers to produce the tickets. She also has to produce hard copy of the details of every flight, including passenger names, prior to each flight.

Evaluate the output devices which Jasvinder might use, including their specific use in this system.

Answer:

4	This question to be marked as levels of response:	8
	Level 3 (7–8 marks) Candidates will explain both the advantages and disadvantages of a range of different output devices using relevant and appropriate examples. The information will be relevant, clear, organised and presented in a structured and coherent format. There may be a reasoned conclusion/opinion. Specialist terms will be used correctly and appropriately. **Level 2 (4–6 marks)** Candidates will explain the advantages and disadvantages of more than one output device. Examples used will be for the most part relevant. For the most part, the information will be relevant and presented in a structured and coherent format. There may be a conclusion/opinion. Specialist terms will be used appropriately and for the most part correctly. **Level 1 (1–3 marks)** Candidates will only address some aspects of the use of output devices. Examples, if used, may lack relevance. Answers may be in the form of a list. There will be little or no use of specialist terms. **Level 0 (0 marks)** Response with no valid content.	

Question 4

Answer (Continued):

Answers may include:

To print the tickets:
The advantage of a laser printer is that the quality of print will be good enabling passengers to see their flight number and seat number clearly
An inkjet printer would produce higher quality tickets
An inkjet printer may be relatively slow causing queues at the ticketing department
A dot matrix printer would not be as clear as a laser printer or inkjet printer
A laser printer might not be good for this as it takes some time to produce a first copy and there wouldn't be more than one copy
A dot matrix printer may be relatively slow causing queues at the ticketing department

Producing the flight lists:
The list may be long and it may be difficult to correlate the sheets
A dot matrix printer may be better as fan fold stationery could be used
Less risk of a dot matrix printer running out of paper
Flight lists would be continuous
More easily collated using a dot matrix printer
May need to change cartridges more frequently if an inkjet printer were used
Quality of printout would not be an issue for flight lists
Noise of dot matrix would not be an issue at a busy airport.

November 2017 – P13

4   Helen is the manager of a company which sells cars. She is going to produce a blog about the success of the company. She will use word processing, spreadsheets, databases and other software.

Evaluate the different types of software she will use to produce the blog.

Answer:

4	This question to be marked as levels of response:	8
	Level 3 **7–8 marks** Candidates will explain both the advantages and disadvantages of a range of different types of software using relevant and appropriate examples. The information will be relevant, clear, organised and presented in a structured and coherent format. There may be a reasoned conclusion/opinion. Specialist terms will be used correctly and appropriately. **Level 2** **4–6 marks** Candidates will explain the advantages and disadvantages of more than one type of software. Examples used will be for the most part relevant. For the most part, the information will be relevant and presented in a structured and coherent format. There may be a conclusion/opinion. Specialist terms will be used appropriately and for the most part correctly. **Level 1** **1–3 marks** Candidates may only give basic advantages/disadvantages of one type of software. Answers may be simplistic with little or no relevance. Answers may be in the form of a list. There will be little or no use of specialist terms. **Level 0** **0 marks** Response with no valid content.	

Question 4

Answer (Continued):

Answers may include:

Using word processing it is easier to edit documents ready for inclusion in the website compared to text editors, spreadsheets and databases
Using word processing it is easier to format documents ready for inclusion in the website compared to text editors, spreadsheets and databases
Using word processing it is more difficult to enter statistics and manipulate these compared to spreadsheets and databases
Easier to calculate statistics with a spreadsheet than using database software
Can produce charts to show sales growth with a spreadsheet easier than using a database
Databases could be used to store and process sales figures easier than a spreadsheet
Easier to query a database than using a spreadsheet
Easier to produce reports with a database than a spreadsheet
With a text editor formatting is not lost when converting to HTML
Using web authoring package is easier to produce a blog than using text editor...
...easier to use than text editor as functions are provided.

11 Ahmed was overheard saying 'MIS is a piece of software to store data'. Anjan, his colleague, said 'I am sure it's a little more complicated than that.'

By describing the features of a management information system (MIS), explain why Anjan was justified in his statement.

Answer:

11	**Six** from:	6
	MIS is a computer-based system that provides managers with the tools to organise, evaluate and efficiently manage departments within an organisation It provides past, present and prediction information It includes software that helps in decision making It includes many data resources such as databases It includes the hardware resources of a system It includes decision support systems, people management and project management applications Companies are able to identify their strengths and weaknesses due to the presence of revenue reports, employees'.	

March 2017 – P12

4   There are many types of user interface in computerised systems. Three types are a graphical user interface, a dialogue interface and a gesture based interface.

Evaluate these types of user interface.

Answer:

4	**Eight** from:	8
	Users with physical handicaps may not be able to use a keyboard or mouse… …or control their limbs accurately… …could speak into a microphone to control a device For reasons of hygiene a doctor may not be allowed to touch a display or device Appropriate gestures/speaking into a microphone are/is a more hygienic way to control the device Gestures may be a quicker way of initiating a response from a device Certain gestures may not be socially acceptable which is not a problem with the other interfaces Some gestures may be unintentional but still initiate a reaction from the device Dialogue interface allows hands free control ensuring safety when driving… …whereas gestures/GUI would need at least one hand to leave the steering wheel Dialogue interface can be more expensive to develop compared with a GUI Dialogue interface may not operate reliably if there is background noise or user has a cold/strong dialect/accent… …whereas GUI/gestures will still be reliable GUIs tend to be more accurate than gestures/dialogue Dialogue interface often requires a training session with user… …GUI/gestures can be taught through manuals Gesture based is less effective when several users/background movement involved *One mark is available for an appropriate reasoned opinion*	

5   Avtar is a recently appointed network manager in a school. In his role he will need to use a variety of utility software.

   (a)   Describe, in detail, each of the following utilities.

      (i)   anti-virus software:

Answer:

5(a)(i)	Anti-virus software – *Four* from: Software used to prevent, detect and remove malicious software Can protect from: malicious Browser Helper Objects (BHOs), browser hijackers, ransomware, keyloggers, backdoors, rootkits, Trojan horses, worms, malicious LSPs, dialers, fraudtools, adware and spyware (must have at least two) Signature-based detection compares the contents of a file to its database of known malware signatures Heuristic-based detection detects malware based on characteristics typically used in known malware code Behavioural-based detection: is based on the behavioural fingerprint of the malware at run-time… …is only able to detect malware after they have starting doing their malicious actions Sandbox detection based on behavioural-based detection… …but doesn't detect the behavioural fingerprint at run time… …it executes the programs in a virtual environment logging what actions the program performs Gives user options to delete or quarantine files/asks if user wants virus deleted Scans computer/files/disk for viruses	4

      (ii)   data compression:

Answer:

5(a)(ii)	Data compression – *Three* from: Encoding information using fewer bits than the original representation Can be either lossy or lossless Lossless compression reduces number of bits by identifying repeated patterns of data No information is lost in lossless compression Lossy compression reduces number of bits by identifying unnecessary information Storage space required for file/file size is reduced	3

Question 5, Part a(iii) and a(iv)

(iii) disk defragmentation:

Answer:

5(a)(iii)	Disk defragmentation – **Three** from: Organises the contents of the disk into the smallest number of contiguous regions/fragments Attempts to create larger regions of free space using compaction Some defragmentation utilities try to keep smaller files within a single directory together The movement of the hard drive's read/write heads over different areas of the disk when accessing fragmented files is slower… …compared to accessing the entire contents of a non-fragmented file sequentially	3

(iv) disk formatting:

Answer:

5(a)(iv)	Disk formatting – **Two** from: Prepares a data storage device for initial use Organises the tracks on a disk into sectors A new disk medium is fully prepared in order to store files The first stage is low-level formatting followed by… …partitioning which makes the data storage device visible to an operating system… followed by high-level formatting which generates a new file system	2

June 2018 – P11

2   Tick the **four** most accurate statements referring to different types of user interface.

	✓
A mouse is essential for entering commands when using a command line interface.	
Computer beginners often prefer to use a command line interface.	
A graphical user interface does not require the user to learn many commands off by heart.	
Users can only draw charts when using a graphical user interface.	
A graphical user interface consists of windows, icons, menus and pointers.	
A microphone is needed to input commands into a dialogue interface.	
A dialogue interface requires the user to be a computer expert.	
A gesture based interface does not require the use of any input devices.	
A gesture based interface usually concentrates on face and hand movements.	
The time taken for a command to be given and the response appearing on the screen is not important in a dialogue based interface.	

[4]

Question 2

Answer:

2			4
	A mouse is essential for entering commands when using a command line interface.		
	Computer beginners often prefer to use a command line interface.		
	A graphical user interface does not require the user to learn many commands off by heart.	✓	
	Users can only draw charts when using a graphical user interface.		
	A graphical user interface consists of windows, icons, menus and pointers.	✓	
	A microphone is needed to input commands into a dialogue interface.	✓	
	A dialogue interface requires the user to be a computer expert.		
	A gesture based interface does not require the use of any input devices.		
	A gesture based interface usually concentrates on face and hand movements	✓	
	The time taken for a command to be given and the response appearing on the screen is not important in a dialogue based interface.		

3 An author is using a computer to write a book.

   (a) Describe, in detail, how she could use different sets of keys on her keyboard to edit and save the book.

Answer:

3(a)	**Three** *from:* Can use ctrl key and other keys to save, print, copy and paste text, find and replace text Can use arrow keys, home, end, page up and page down to navigate through text Can use tab key to indent, delete key to delete forwards, backspace to delete backwards Can use the alphabetic keys to enter the text of the book.	3

Question 3, Part (b)

(b) When the author finishes a chapter she wishes to print it out.

Name **three** appropriate types of printer, and for each one give a different advantage to the author for using it compared to the others.

Answer:

3(b)	Dot matrix printer – cheaper to run/ink ribbon is cheaper than cartridges/toner/do not have to refill paper as frequently as the others/ribbon does not need changing as often as the others Inkjet printer – faster to print out work than dot matrix/better quality output than dot matrix Laser printer – do not have to change toner as often as inkjet cartridges/better quality output than dot matrix.	3

7 Describe the importance of considering a user's mental model when a designer seeks to create a user interface for them.

Answer:

7	**Six** *from:* A mental model is based on belief not facts A mental model is what the user will describe in terms of what they need The designer must produce a user interface which reflects the user's line of thought It is a model of what users know/think they know about a system Users create mental models very quickly, often before they even use the software or device Users' mental models come from their prior experience with similar software or devices If the designers of the user interface do not take the user's mental model into account then it is highly likely that it will be hard to learn and use A user interface that matches the user's mental model will be easy to learn/it will take less time to learn A user interface that matches the user's mental model will be easy to use A user interface that matches the user's mental model will provide the user with transferable skills so… …another interface using similar ideas will be just as easy to use A user interface that matches the user's mental model enables the user to predict how to navigate the interface Training can be used to change a user's mental model to fit the design of the interface.	6

June 2018 – P12

2   Tick the **four** most accurate statements referring to hardware and software.

	✓
Compilers and linkers are examples of system software.	
Device drivers and interpreters are examples of application software.	
Word processing and spreadsheets are examples of hardware.	
Software is another name for computer programs.	
Software is written in machine code before being converted to high-level language.	
Viruses are a type of software.	
Malicious bots are a type of hardware.	
System software directly operates the computer hardware.	
Operating systems are types of hardware.	
A mouse and keyboard are the basic software components of a computer.	

[4]

Answer:

2			4
	Compilers and linkers are examples of system software.	✓	
	Device drivers and interpreters are examples of application software.		
	Word processing and spreadsheets are examples of hardware.		
	Software is another name for computer programs.	✓	
	Software is written in machine code before being converted to high-level language.		
	Viruses are a type of software.	✓	
	Malicious bots are a type of hardware.		
	System software directly operates the computer hardware.	✓	
	Operating systems are types of hardware.		
	A mouse and keyboard are the basic software components of a computer.		

4   Many personal computers are bought with certain types of software already installed. This includes a number of items of utility software.

Describe how each of the following utilities carries out its function.

(a) Anti-virus software

Answer:

4(a)	**Two** *from:* Scans the computer to make sure it is not infected with a virus/to find viruses Compares with existing viruses/detects changes in behaviour of files It may quarantine the infected programs It will ask the user whether or not they want to delete the infected programs (Does background scans of downloads and attachments for viruses) and informs the user if anything found.	2

(b) Backup software

Answer:

4(b)	**Two** *from:* Creates (additional exact) copies of files, databases hard disks or network servers Use these copies to restore the original contents in the event of data loss Asks user to enter type of backup Asks if you wish to restore the backup Asks if you wish to verify the backup Asks when backup is to take place/frequency of backups.	2

Question 4, Part (c)

(c) Disk defragmentation software

Answer:

4(c)	**Two** *from:*	2
	Rearranging files stored on a disk Causes data to occupy contiguous storage locations Physically organises the contents of the mass storage device used to store files Organises data into the smallest number of contiguous regions (fragments) Attempts to create larger regions of free space.	

June 2018 – P13

1   Tick the **four** most accurate statements referring to hardware and software.

	✓
Operating systems are examples of hardware.	
An Optical Mark Reader and a Magnetic Ink Character Reader are types of storage device.	
A scanner is a type of software.	
Hardware is another name for the physical parts of a computer system.	
A bar code reader is an example of an input device.	
The CPU of a computer is considered to be hardware.	
A device driver is a type of hardware.	
System and application are the names of two types of software.	
A dot matrix printer is an example of software.	
Applets and apps are examples of hardware.	

[4]

Answer:

1			4
	Operating systems are examples of hardware.		
	An Optical Mark Reader and a Magnetic Ink Character Reader are types of storage device.		
	A scanner is a type of software.		
	Hardware is another name for the physical parts of a computer system.	✓	
	A bar code reader is an example of an input device.	✓	
	The CPU of a computer is considered to be hardware.	✓	
	A device driver is a type of hardware.		
	System and application are the names of two types of software.	✓	
	A dot matrix printer is an example of software.		
	Applets and apps are examples of hardware.		

5 Joseph has written a program using a high level language. He now needs to get it translated for use on his computer.

Compare and contrast the use of a compiler with an interpreter for this purpose.

Answer:

| 5 | **Six** *from:*

Compiler and interpreter both convert high level programming language to a lower level
Both are examples of system software

A compiler converts the high-level instructions into machine language
An interpreter converts the high-level instruction into some intermediate form and after that the instruction is executed

The entire program is compiled before being executed
The interpreter translates one statement at a time, executing the statement before moving on to the next one

A list of errors is created by the compiler after the compilation process
An interpreter stops translating after the first error

When executed, the compiled program is executed directly using the machine code
An interpreter has to be resident in memory in order for the program to run

Interpreted programs can be modified at runtime by adding/changing functions
A compiled program has to be recompiled fully even for small modifications to be made. | 6 |

10 Magnetic Ink Character Recognition (MICR) and Optical Character Recognition (OCR) are often used in different ways for different purposes.

Evaluate the use of MICR and OCR for entering data from documents.

Answer:

10	**Eight** *from*:	8
	MICR characters are readable even if a document is obscured by marks or overprinted MICR systems provide a high level of security since MICR documents are difficult to forge The error rate for reading MICR characters is small as compared to other character recognition systems Printing of MICR is demanding, requiring difficult-to-achieve standards which causes it to be slower to print MICR readers are expensive to purchase Capable of recognising only MICR fonts written in a specific format MICR printers run on cartridges that cost far more than other toner cartridges OCR is much faster than someone manually entering large amounts of text OCR is cheaper than paying someone to manually enter large amounts of text OCR can allow documents to be made editable MICR does not OCR – all documents need to be checked over carefully and then manually corrected OCR – not 100% accurate, there are likely to be some mistakes made during reading... ...such as 1 and I, O and 0.	

November 2018 – P11 & P13

2   Tick the **four** statements which are true regarding user interfaces.

	✓
The colours used in a dialogue interface are of key importance.	
A mouse is an essential input device when using a command line interface.	
A graphical user interface requires you to type in a large number of instructions.	
A command line interface is mainly used by more advanced computer users.	
A gesture based interface allows users to point with their fingers as a method of input.	
A command line interface needs menus and icons to operate it.	
A dialogue interface can interpret hand movements to carry out commands.	
A gesture based interface is very reliable as most users have similar gestures for communicating.	
The font size is the most important feature of a command line interface.	
A graphical user interface involves the use of windows and pointers.	

[4]

Question 2

Answer:

2			4
	The colours used in a dialogue interface are of key importance.		
	A mouse is an essential input device when using a command line interface.		
	A graphical user interface requires you to type in a large number of instructions.		
	A command line interface is mainly used by more advanced computer users.	✓	
	A gesture based interface allows users to point with their fingers as a method of input.	✓	
	A command line interface needs menus and icons to operate it.		
	A dialogue interface can interpret hand movements to carry out commands.		
	A gesture based interface is very reliable as most users have similar gestures for communicating.	✓	
	The font size is the most important feature of a command line interface.		
	A graphical user interface involves the use of windows and pointers.	✓	

3   There are many types of data storage device including hard disk drives, solid state drives, optical drives and magnetic tape drives.

Describe the purpose of these storage devices and how they store data.

Answer:

3	**Eight** *from:*	8
	The purpose of storage devices is to store data and software for later use The purpose of storage devices is to hold data even when the computer is turned off so the data can be used whenever needed/to have non-volatile/permanent/backup copies of data/keep archives Stored data may be loaded back into the CPU for further processing or sent to an output device The device writes data to the medium and reads it from the medium The CPU is able to write data to the hard disk/tape in the form of formatted files The CPU is also able to read data and software from the hard disk/tape in readiness for processing to take place There is no distinction between software and data as far as the storage device is concerned – both are a form of digital data Optical devices such as CD, DVD and Blu-Ray drives all make use of a laser to burn dark pits onto the medium Each dark pit is a binary digit e.g. 1 whilst the absence of a pit is the opposite binary bit e.g. 0 if the pit is a 1 Small areas of a tape/disk are magnetised to represent 1 or 0 Hard disks and magnetic tape have surfaces coated with a magnetically sensitive material such as iron oxide Solid state drives make use of electrical charge to store the data Reading data involves retrieving data from the surface and transferring it into the computer's memory for use.	

6   A head teacher wishes to computerise the marking of student exam papers. She is investigating systems that use optical mark recognition (OMR).

(a)   Give **three** advantages of using an OMR system compared to marking papers manually.

Answer:

6(a)	**Three** *from:* Easier for students to complete Essential details can be pre-printed so easier to identify candidate Faster to <u>mark scripts</u> More accurate <u>marking of scripts</u> Graphs/statistics are more easily produced.	3

(b)   Give **three** disadvantages of using an OMR system compared to marking papers manually.

Answer:

6(b)	**Three** *from:* Students cannot express themselves as easily/OMRs cannot read text/extended answers Answers are not so easily human readable/harder for teacher to analyse answers Questions cannot be open ended/do not allow variety of answers Equipment is expensive to purchase/setting up is expensive.	3

November 2018 – P12

2   Tick the **four** most accurate statements regarding input and output.

	✓
A scanner can be both an input and output device.	
A touch screen can be both an input and output device.	
Input devices allow the user to communicate with the computer's operating system.	
Output devices allow data to be stored electronically for future use.	
Inputs must be converted to analogue data before they can be processed by the computer.	
All inputs always come in the form of digital data.	
A plotter is an output device.	
Outputs always come in the form of a printout.	
A microphone is an input device.	
A pen drive is an input device.	

[4]

Answer:

2			4
	A scanner can be both an input and output device.		
	A touch screen can be both an input and output device.	✓	
	Input devices allow the user to communicate with the computer's operating system.	✓	
	Output devices allow data to be stored electronically for future use.		
	Inputs must be converted to analogue data before they can be processed by the computer.		
	All inputs come in the form of digital data.		
	A plotter is an output device	✓	
	Outputs always come in the form of a printout.		
	A microphone is an input device.	✓	
	A pen drive is an input device.		

4 **(a)** Describe the advantages of using a web authoring package to create a web page rather than writing HTML code.

Answer:

4(a)	**Three** *from:*	3
	Do not have to spend time learning HTML/do not have to be an expert/have much experience/many skills to make a fully functional website Most web authoring packages involve basically pointing and clicking to create a web page rather than typing in instructions It is more difficult to remember the various HTML codes for creating web pages Writing HTML would take much longer/it saves time when it comes to creating content/establishing the layout/graphical elements of the page.	

Question 4, Part (b)

(b) Describe the disadvantages of using a web authoring package to create a web page rather than writing HTML code.

Answer:

4(b)	**Three** *from:* It limits the user's options as a designer Such programs rely on templates with limited options for the look and feel of the site Depending on the type of software, user may not be able to implement video or other common web-design elements Software may make user completely reliant on it … … if the program suddenly becomes unavailable for some reason user cannot create a website Knowledge of HTML means web pages can be designed regardless of what software is available/only needs a simple text editor.	3

11 A number of items of computer hardware are used for storing data.

Evaluate the use of RAM, ROM and hard disks for this purpose.

Answer:

| 11 | **Level 3**   **(7–8 marks)**
Candidates will discuss the importance of RAM, ROM and hard disks including the advantages and disadvantages.
Candidates will explain the effectiveness of these items in detail.
The information will be relevant, clear, organised and presented in a structured and coherent format.
There may be a reasoned conclusion/opinion.
Specialist terms will be used correctly and appropriately.

Level 2   **(4–6 marks)**
Candidates will discuss the advantages and disadvantages of RAM, ROM and hard disks.
For the most part, the information will be relevant and presented in a structured and coherent format.
There may be a conclusion/opinion.
Specialist terms will be used appropriately and for the most part correctly.

Level 1   **(1–3 marks)**
Candidates will present an advantage or disadvantage of two of RAM, ROM and hard disks.
Candidates will describe at least one of these items.
There will be little or no use of specialist terms.

Level 0   **(0 marks)**
Response with no valid content. | 8 |

Question 11

Answer (Continued):

Candidates may refer to for e.g.
RAM / ROM allows quicker access to data than HDD
HDD or the Hard Disk Drive stores information for permanent storage/long term whereas RAM only stores information for relatively short-term usage
Data in RAM is deleted once the power to the device is stopped
RAM stores active program data whereas ROM is unable to
RAM stores data that the user is currently working on whereas ROM is unable to
Large RAM chips can be read faster than most ROMs ...
... ROM content is sometimes copied to RAM and subsequently read from RAM

Hard disks can be portable and easy to move from device to device unlike ROM/RAM
Data in RAM can be accessed much faster than the data on a hard disk
Hard disk drives are electromechanical devices and more prone to failure than RAM/ROM – no moving parts
In a normal computer configuration RAM size is much smaller than the hard disk size

ROM cannot be changed by a program or user
ROM/HDD retains its data even after the computer is turned off
ROM stores the instructions for the computer to start up when it is turned on again
Would be expensive to save an operating system on ROM so need hard disk
Still need to have boot up instructions to activate hard disk drive so ROM is needed.

March 2018 – P12

14 Magnetic tape and optical media are used to back up data.

Using examples, evaluate their use in this and other situations.

Answer:

14	This question to be marked as levels of response:	8
	Level 3 (7–8 marks) Candidates will explain the advantages and disadvantages of magnetic tape and optical media using relevant and appropriate examples. The information will be relevant, clear, organised and presented in a structured and coherent format. There may be a reasoned conclusion/opinion. Specialist terms will be used correctly and appropriately. **Level 2 (4–6 marks)** Candidates will explain the advantages and disadvantages of magnetic tape and optical media. Examples used will be for the most part relevant. For the most part, the information will be relevant and presented in a structured and coherent format. There may be a conclusion/opinion. Specialist terms will be used appropriately and for the most part correctly. **Level 1 (1–3 marks)** Candidates will give the advantages/disadvantages of magnetic tape and optical media. Examples, if used, may lack relevance. There will be little or no use of specialist terms. **Level 0 (0 marks)** Response with no valid content.	

Question 14

Answer (Continued):

Candidates may make reference to e.g.

A single magnetic tape stores more data than a single optical disk…
…so more appropriate for server backups
Single tapes cost more than a single optical disk…
…so unlikely to be used by students to back up their work
Tapes cost less per unit memory…
…so more cost effective for large companies storing lots of data
Optical disks are not quite as portable as a tape…
…particularly where a large amount of data is stored requiring more disks
Both last longer than the technology that reads them however
Tape is corrupted if placed near to a magnetic field
Optical disks have faster data access times…
…so more suitable for non-backup purposes
Magnetic tape is less susceptible to damage than optical discs during handling…
…as it is completely encased
Optical disks are more viable where there are large variations of temperature.

June 2019 – P11

2   The management of a hotel is introducing a computer system for producing bills for their customers. They are considering which type of printer to use.

Tick the **four** most accurate statements regarding different types of printer, if used in the hotel reception area.

	✓
Laser printers produce very high quality output	
A dot matrix printer would produce higher quality output than an inkjet printer	
An inkjet printer would be slower at producing output than a dot matrix printer	
Dot matrix printers use continuous stationery	
Dot matrix printers need the ink cartridge changing more frequently than inkjet printers	
Dot matrix printers are very quiet which is important in a hotel reception area	
A laser printer can operate in harsh conditions, unlike a dot matrix printer	
A laser printer toner cartridge is more expensive to buy than an inkjet cartridge	
Multi-part stationery is easier to use with laser printers than with dot matrix printers	
Inkjet printers are cheaper to buy than dot matrix printers	

[4]

Answer:

2			4
	Laser printers produce very high quality output	✓	
	A dot matrix printer would produce higher quality output than an inkjet printer		
	An inkjet printer would be slower at producing output than a dot matrix printer		
	Dot matrix printers use continuous stationery	✓	
	Dot matrix printers need the ink cartridge changed more frequently than inkjet printers		
	Dot matrix printers are very quiet which is important in a hotel reception area		
	A laser printer can operate in harsh conditions unlike a dot matrix printer		
	A laser printer toner cartridge is more expensive to buy than an inkjet cartridge	✓	
	Multi-part stationery is easier to use with laser printers than with dot matrix printers		
	Inkjet printers are cheaper to buy than dot matrix printers	✓	

7   An operating system is system software that manages computer hardware and software resources.

Describe the tasks that an operating system carries out.

Answer:

7	Four from: Allocates memory to software Sends data/instructions to printers Responds to input devices Opens and closes files on storage devices In multi-tasking/multi-programming systems allocates equitable processing time to each task/program Sends error messages to applications/users Handles user logins Handles file permissions/security settings Provides the interface between the user and the computer	4

13 IT professionals often use command line interfaces (CLIs) to communicate with computers. Office workers, however, prefer graphical user interfaces (GUIs). In the home, gesture based interfaces (GBIs) are increasingly being used.

Evaluate these three types of interface.

Answer:

13	Eight from:	8
	Users with physical handicaps may not be able to use a keyboard or mouse For reasons of hygiene a doctor may not be allowed to touch a display or device so need to use gesture based interface Appropriate gestures is a more hygienic way to control the device Gestures may be a quicker way of initiating a response from a device Certain gestures may not be socially acceptable which is not a problem with the other interfaces Some gestures may be unintentional but still initiate a reaction from the device GUIs tend to be more accurate than relying on gestures CLI requires user to have to learn many commands unlike the others CLI commands are more difficult to edit CLI is more difficult to view different items on one screen when multitasking CLI processing speed tends to be faster than the others CLI uses less memory than the others CLI is less likely to change over time whereas GUIs tend to change regularly meaning less need to learn how to use a new system One mark is available for an appropriate opinion	

June 2019 – P12

8 The owners of a bank are considering changing its system of reading cheques from Magnetic Ink Character Recognition (MICR) to Optical Character Recognition (OCR).

Give **two** advantages and **two** disadvantages of using OCR instead of MICR.

Answer:

8	Advantages – **Two** *from:*	4
	The bank will have an electronic copy of the cheque to refer in case of customer complaints Can read all the data on the cheque / not limited to MICR characters Cheques can be processed after being deposited at ATMs Cheques can be processed having been sent by phone (camera) Disadvantages **– Two** *from:* Cheques will be easier to forge / less secure New OCR equipment / software will need to be purchased If cheques are written over OCR will not be able to read it OCR is less accurate than MICR.	

June 2019 – P13

1   Tick the **four** most accurate statements regarding solid state drives (SSDs), hard disk drives (HDDs), magnetic tape drives and their associated media.

	✓
Hard disks are metal platters with a magnetic coating that stores data	
Hard disk drives have no moving parts and so are not at risk of being damaged	
Magnetic tape drives can have almost instantaneous data access	
SSDs have a faster data transfer rate than magnetic tape drives	
Magnetic tape uses direct access to search for data	
Magnetic tapes are used in laptop computers more than hard disks	
SSDs store considerably more data than magnetic tapes	
SSDs still cost more per gigabyte than hard disk drives	
SSDs make more noise than the sound of hard disk drives when in use	
Magnetic tapes are used to store backups of data on file servers	

[4]

Answer:

1			4
	Hard disks are metal platters with a magnetic coating that stores data	✓	
	Magnetic tape drives have moving parts and so are at risk of being damaged		
	Magnetic tape drives can have almost instantaneous data access		
	SSDs have a faster data transfer rate than magnetic tape drives	✓	
	Magnetic tape uses direct access to search for data		
	Magnetic tapes are used in laptop computers more than hard disks		
	SSDs store considerably more data than magnetic tapes		
	SSDs still cost more per gigabyte than hard disk drives	✓	
	SSDs make more noise than the sound of hard disk drives when in use		
	Magnetic tapes are used to store backups of data on file servers	✓	

5   A headteacher is updating the school's record-keeping system. For the new system he is considering using off-the-shelf software. When the new system is running the secretary will need to enter all the students' data. This will require accurate entry of the data.

   (a) Define what is meant by the term 'software' and describe, giving examples of each, application and system software.

Answer:

5(a)	**One** *mark:* It is a part of a computer system that consists of data or computer instructions **Three** *from:* System software is a type of computer program that is designed to run a computer's hardware and application programs Examples are utilities, operating systems, compilers, interpreters, assemblers, linkers and device drivers (must have two) Application software is a program or group of programs that is designed for the end user Examples are database programs, word processors, web browsers and spreadsheets (must have two).	4

   (b) Describe the benefits of using off-the-shelf software.

Answer:

5(b)	**Three** *from:* Software is cheaper as it is mass produced / do not have to employ programmers to write software for specific tasks It will be available straight away Testing has been rigorously carried out by the developers so there are unlikely to be any bugs There will be many sources of support Support includes helplines with operators who will already have had to deal with a wide range of problems.	3

Question 5, Part (c)

(c) Describe the drawbacks of using off-the-shelf software.

Answer:

5(c)	**Three** from: May be difficult to adapt to the particular use required by the school May have several distracting extra features unsuitable for the use it is to be put to May not necessarily be compatible with the existing system and software used Some functions peculiar to the school's needs may not be available.	3

(d) Describe the different methods of verification the secretary could use.

Answer:

5(d)	**Four** from: The secretary enters the data twice The computer stores the data on its hard disk / SSD and compares it with the data that is entered the second time … … generates an error message if the second entry does not match the first Alternatively two people type in the data The computer compares the two versions … … freezing the keyboard if there is a difference Comparing the data on the screen against the original paper document checking for mistakes Printing out a copy of the data and comparing the printout to the original paper document checking for mistakes.	4

November 2019 – P11 & P13

3   Most computer systems consist of hardware and software.

(a) Define the term 'hardware' in an IT context.

Answer:

3(a)	The collection of physical components/devices that constitute/are used in a computer system	1

(b) Giving brief descriptions of **two** examples, define the term utility software.

Answer:

3(b)	**Two** from: A program that helps perform maintenance in a computer system A program that performs a very specific task usually related to managing system resources Operating systems can contain a number of utilities for managing files and storage devices **Two** from: Examples are: anti-virus software to remove viruses back-up software to make copies for future use data compression utilities to reduce the storage size of a file disk defragmentation utilities to remove non-contiguous spaces on a disk disk formatting is preparing a data storage device for initial use file-copying utilities for the creation of a new file which has the same content as an existing file deleting files which is removing a file from a computer's file system	4

6   John, a user interface designer, has been asked by a systems analyst to design an interface for a proposed information system. He will need to consider a mental model of the potential users of the system.

   (a)   Describe what is meant by a mental model in this context.

Answer:

6(a)	**Four** from:	4
	A mental model is based on belief not facts It is a form of internal symbol or representation of external reality It is a model of what users know/think they know about a system It is a representation of what the user would want/expect in an interface Users create mental models very quickly, often before they even use the software or device Users' mental models come from their prior experience with similar software or devices/user interfaces A conceptual model is the actual model that is given to the user through the interface of the product A description of why a mental model is important	

   (b)   Describe the features of a user interface which need to be considered when planning its design. Where appropriate, give examples of each feature.

Answer:

6(b)	**Five** from:	5
	How colour is to be used, which colour combination is most suitable/which colours would make it easier to read The layout of the screen, such as positioning of elements to emphasise importance/positioning of elements to ensure readability/layout needs to look organised/grouping of similar items Increase of font size to emphasise the importance of certain elements/to ensure readability of information/reduction in font size to conserve space/ to suit the age of the audience Only display information the user needs to perform the current operation/limiting the information to that necessary for the user Which controls will be required/ buttons, checkboxes, radio buttons, dropdown lists, list boxes, toggles, date field (at least two) Which navigational aids will be required such as breadcrumb, forward/backward buttons, end of file button (at least two)	

November 2019 – P12

2   Tick the **four** most accurate statements regarding internal hardware components.

	✓
A motherboard has a collection of chips and controllers known as the chipset	
A hard disk drive usually has less storage capacity than the RAM within a computer	
ROM is the memory used to store documents the user is currently working on	
The hard disk drive is used to store application software	
A solid state drive has no moving parts	
RAM is memory that cannot be changed	
A hard disk drive uses flash memory to store data	
RAM stores the start up instructions of a computer even when it is switched off	
A PC can still work without having a CPU	
The arithmetic logic unit and the control unit are part of the CPU in a computer	

[4]

Question 2

Answer:

2			4
	A motherboard has a collection of chips and controllers known as the chipset	✓	
	A hard disk drive usually has less storage capacity than the RAM within a computer		
	ROM is the memory used to store documents the user is currently working on		
	The hard disk drive is used to store application software	✓	
	A solid state drive has no moving parts	✓	
	RAM is memory that cannot be changed		
	A hard disk drive uses flash memory to store data		
	RAM stores the start up instructions of a computer even when it is switched off		
	A PC can still work without having a CPU		
	The arithmetic logic unit and the control unit are part of the CPU in a computer	✓	

3   A hockey club secretary is planning to computerise the players' records. For this system she is considering using custom written software.

   (a)   Describe the drawbacks of using custom written software.

Answer:

3(a)	**Three** from: Costs more to pay programmers to write code specifically for the task/users' needs/don't share development costs with other users Testing is limited to what the programmers think may be required ... ... based on how they think the software will be used Support is limited to the team of programmers only Can take a long time to develop the software There may be a lot of bugs as it has not been tested <u>so thoroughly</u>/has not been used before	3

   (b)   Describe the benefits of using custom written software.

Answer:

3(b)	**Three** from: It is designed specifically for the task/customers' requirements There will be no unnecessary features It does not have to be adapted for use Programmers are available to make any changes required/rectify bugs Programmers will ensure that it is compatible with the existing system and software	3

7   Sadiq has written a program that he now wishes to convert using a compiler.

(a)   There are two types of software. Name them, indicating which type a compiler is.

Answer:

7(a)	Application and system (software), compiler is system	1

(b)   Describe the function of a compiler.

Answer:

7(b)	**Four** from: A compiler is a computer program/set of programs It translates source code/program written in a high level programming language It translates source code/program into a lower level language/assembly language/machine code/object code It creates an executable program It translates it for the <u>computer which can only understand machine code</u> to run It produces error messages/list of errors to help programmer debug the program	4

11 Juanita, an office manager, has just been given the task of producing customer invoices. Each invoice will need to have three copies. She is trying to decide between using a dot matrix printer or an inkjet printer to produce the invoices.

(a) Give **three** detailed advantages of Juanita choosing a dot matrix printer.

Answer:

11(a)	**Three** from:	3
	She could use carbon copy paper (which requires less filling of the sheet feeder) She could use continuous stationery which would require less human interaction/doesn't run out of paper as quickly as inkjet The ink ribbon lasts longer/cheaper to buy than an inkjet cartridge, saving costs When the ink runs out on an inkjet printout is less legible, whereas with a dot matrix printer the print gets fainter but is still legible	

(b) Give **three** detailed disadvantages of Juanita choosing a dot matrix printer.

Answer:

11(b)	**Three** from:	3
	The striking of the heads causes a lot of noise which would be distracting in an office environment The quality of output is not so good with a maximum of 240 dpi whereas inkjets output at 1200 dpi The speed of output is not as high as an inkjet printer, with the fastest dot matrix only approaching the speed of the slowest inkjet The cost of a dot matrix printer <u>to buy</u> is far more expensive than a typical inkjet Dot matrix has a more limited character set.	

March 2019 – P12

1 Tick the **four** statements, referring to different types of application software, which are true.

	✓
You can use word processing software to create tables of data	
You can only use database software to create reports	
Spreadsheet software can be used to produce charts	
You must always use web authoring software when creating web pages	
Financial modelling can involve the use of spreadsheet software	
Video editing software cannot be used to edit a music soundtrack	
Word processing software can include multimedia features	
You can only create data forms using database software	
Photo editing software is only used to edit photos	
A management information system (MIS) is a form of database management system	

[4]

1			4
	You can use word processing software to create tables of data	✓	
	You can only use database software to create reports		
	Spreadsheet software is used to produce charts	✓	
	You must always use web authoring software when creating web pages		
	Financial modelling can involve the use of spreadsheet software	✓	
	Video editing software cannot be used to edit a music soundtrack		
	Word processing software can include multimedia features		
	You can only create data forms using database software		
	Photo editing software is only used to edit photos		
	A management information system (MIS) is a form of database management system	✓	

4   There are many types of systems software including interpreters and device drivers.

   (a)   In order for a computer to output to a printer it uses a printer driver. This is just one of many device drivers a computer uses.

       Explain the purpose of device drivers.

Answer:

4(a)	**Four** *from:* It operates/controls a device attached to the computer Without the required device driver, the corresponding hardware device fails to work It is an interface between operating systems/applications software and the device Tells the operating system how to communicate with the hardware device Upon installation it detects and identifies the peripheral device Wakes up the device when it is needed and puts it back to sleep when it is not Handles the translation of requests between a device and the computer Defines where outgoing data must be stored before it can be sent At least **two** examples of device drivers.	4

   (b)   Describe the function of an interpreter.

Answer:

4(b)	**Four** *from:* Directly executes instructions of a high-level language program Translates a high-level language program into an intermediate stage Translates each line of source code and then executes that line/statement Reports on errors as lines of source code are entered An interpreter has to be resident in memory in order for the program to run.	4

12 A recent development in backing storage of laptop computers has been the increased use of solid state drives (SSDs). However hard disk drives (HDDs) are still used in many laptops.

Evaluate the use of SSDs and HDDs for storing data in laptop computers.

Answer:

| 12 | **Eight** *from:*
Evaluation based on:

Advantages of HDDs/Disadvantages of SSDs:
Hard disks tend to have higher storage capacities than SSDs
Hard disk drives still cost less per gigabyte than SSDs
HDDs last longer than SSDs
The NAND flash used in SSDs can only be used for a finite number of writes
The choice and availability of SSDs is still limited compared to HDDs

Disadvantages of HDDs/Advantages of SSDs:
Hard disk drives are more susceptible to shock and damage…
…as there are moving parts
SSDs have faster data transfer rate
SSDs have quicker boot ups
SSDs can have almost instantaneous data access
HDDs data access speeds is dependent on how close the data is to the read/write heads…
All parts of the SSD can be accessed at once
SSDs use significantly less power at peak load than hard drives…
SSD's energy efficiency can deliver longer battery life in laptops than HDDs
With no moving parts SSDs run at near silent operation unlike whirring hard disk drives
SSDs weigh considerably less than hard drives
SSDs make laptops more portable

Must have at least one from each to gain full marks. | 8 |