Markscheme

May 2017

Information technology in a global society

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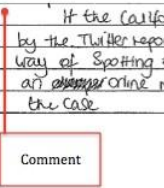
Paper 1

The following are the annotations available to use when marking responses.

Annotation	Explanation	Comment	Short cut
✔	Correct point	Use for identify, state, outline, describe	Alt+0
✖	Incorrect point	Use for identify, state, outline, describe	
BOD	Benefit of the doubt	Answer is close enough to give some credit, indicates that you see some merit in it.	
NBOD	No benefit of doubt	Not quite enough to earn any credit.	
SEEN	Seen	Indicates that the text has been noted, but no credit has been given, or used on a blank page to ensure that RM Assessor and/or staff in Cardiff know that you have seen the page	
OC	Off course		Alt+8
TV	Too vague	Point is unclear, or not specific enough to answer the question.	Alt+1
REP	Repetition	Repeats a point previously made, not necessarily worded in the same way.	Alt+2
REF	Reference	This is used to indicate a reference to the stimulus material, article or the Case Study (Paper 2 or Paper 3)	Alt+3
D	Description	Candidate has added descriptive information to an initial idea that has been named or identified.	Alt+4
A+	Analysis / Explanation	Candidate has explained **why** something occurs, or why it is important to the point s/he is making, or described the consequences of a policy/action/use of IT.	Alt+5
B+	Balanced argument involving detailed analysis	Use in the examiner's comments at the end of extended response questions. Balanced arguments involving detailed analysis can occur within paragraphs as well as at the end of the response. Often, a transition word to link/compare ideas, such as "however" or "on the other hand" is used. Can also be structured analysis of ideas, *eg* good vs bad, for X and against X.	Alt+6
EVAL	Evaluation – beyond the ideas presented to reach a conclusion or overall comment.	Use only if **evaluation is supported**, not just stated. Note that evaluation can occur in the body of an extended response as an evaluative comment about an idea as well as at the end in the conclusion. Fully evaluated requires a well-supported conclusion. Evaluation and detailed analysis can overlap when evaluation is within a paragraph.	Alt+7
O	Opinion	Use only if opinion is supported, not just stated. Note that opinion can occur in the body of an extended response as well as at the end.	Alt+9

	Dynamic, Horizontal	Indicates a valid point that the student will need to support in an extended response.	
	Dynamic, Horizontal Wavy	Used for incorrect statements/phrase	
	Dynamic, Vertical Wavy	Indicates that the candidate has veered off course, i.e. either by not answering the question that is asked or has moved in a direction unrelated to the question. Can also use OC annotation	
	Text box with extended vertical line.	Used to mark and comment on a block of writing that makes a valid point. Note that the text box and the vertical line are connected.	
Text box	Insert comments	Used for comments at the end of questions where the mark needs to be JUSTIFIED. Often with AO2 command terms – EXPLAIN. ALWAYS with AO3 command terms – EVALUATE, JUSTIFY, TO WHAT EXTENT, and DISCUSS.	

You **must** make sure you have looked at all pages. Please put the SEEN annotation on any blank page, to indicate that you have seen it.

Critical Thinking – explanation, analysis and evaluation

These trigger words often signal critical thinking. The bold words are the key terms in the various criteria.
Explanation - *Because, as a result of, due to, therefore, consequently, for example*
Analysis - *Furthermore, additionally, however, but, conversely, likewise, in addition, on the other hand, whereas*
Evaluation - *My opinion, overall, although, despite, on balance, weighing up*

Examiners should be aware that in some cases, candidates may take a different approach, which if appropriate should be rewarded. If in doubt, check with your team leader.

In the case of an "identify" question read all answers and mark positively up to the maximum marks. Disregard incorrect answers. In all other cases where a question asks for a certain number of facts *eg* "describe two kinds", mark the **first two** correct answers. This could include two descriptions, one description and one identification, or two identifications.

It should be recognized that, given time constraints, answers for part (c) questions are likely to include a much narrower range of issues and concepts than identified in the markband. There is no "correct" answer. Examiners must be prepared to award full marks to answers which synthesize and evaluate even if they do not examine all the stimulus material.

1. Airport luggage control

Note to examiners.
- *All part a questions are marked using ticks and annotations where appropriate*
- *Part b and part c are marked using markbands. Use annotations and text comments to provide a rationale behind the marks you awarded.* ***Do not use ticks.***

(a) The barcode allows the airport's luggage control system to access a database containing information about each piece of luggage.

    (i) Identify **two** pieces of information about the luggage that may be obtained from this database. **[2]**

        Answers may include:
- destination
- passenger name/surname
- weight of the bag
- route of the complete journey (*eg* point of departure / transfers)
- flight information (flight number, airline).

        NB: *Do not accept simply "journey" – sufficient detail must be given.*

        *Award **[1]** for identifying each piece of information about the luggage that may be obtained from this database up to maximum of **[2]**.*

    (ii) Identify the steps taken by the luggage control system to decide which conveyor belt to choose when a bag reaches a junction between two conveyor belts. **[4]**

        Answers may include:
- barcode reader reads barcode of bag arriving junction
- system looks for code/finds code in the database
- system retrieves the flight number (accept destination of the flight) that the bag needs to be delivered to from the record associated with that code
- system also retrieves data identifying which conveyor has been assigned to deliver bags for that flight number
- if the new conveyor has been assigned to the same flight number as the bag, the bag is pushed onto the new conveyor
- if not then the bag continues on the original conveyor.

        NB: *Responses must make reference to the IT system(s) involved.*

        *Award **[1]** for identifying each of the steps taken by the system to decide if a bag is pushed to a different conveyor or not when arriving at a junction up to maximum of **[4]**.*

(b)   Analyse the decision by some airports to attach radio frequency identification (RFID) tags to luggage when it is checked in by the passenger, instead of barcode paper printed tags.   **[6]**

Answers may include:

Advantages of barcodes on printed tags
- tags have information that is visible and readable by people
- workers may re-route luggage if needed as information is readable
- printing may be cheaper than RFID tags.

Disadvantages of barcodes on printed tags
- barcodes need to be in the line of sight with the barcode reading device
- paper tags may get dirty or broken
- papers with barcodes may not deliver the information if they are damaged (and paper tags are easily damaged)
- barcode tags more labour intensive – need to be printed and physically attached by airport staff.

Advantages of RFID tags
- can be read by RFID reader from a greater distance/no need to have tag in line with reader
- RFID tags can have more information that a set of numbers in a barcode
- can be reused (if returned – or by frequent flyers)
- are read at a faster rate than barcodes
- may not get damaged with handling as easy as paper tags
- RFID are read/write devices – information may be added along the way
- RFID tags more secure – can be encrypted
- more than one tag can respond at the same time – (so bags hidden under other bags would still be detected *etc*).

Disadvantages of RFID tags
- more expensive
- if system fails then there may not be information on tag readable by a person/ possible delays in baggage processing
- possible that they are read by unauthorized users
- used tags are more difficult to destroy/deactivate than paper barcodes/ discarded tags pose a potential privacy issue for the traveller.

[0]: No knowledge or understanding of ITGS issues and concepts. No use of appropriate ITGS terminology.

[1–2]: A limited response that demonstrates minimal knowledge and understanding of the use of barcodes / RFID tags and uses little or no appropriate ITGS terminology.

[3–4]: A partial analysis, either lacking detail or balance, that demonstrates some knowledge and understanding of the use of barcodes / RFID tags. Some relevant examples from the scenario are used within the response. There is some use of appropriate ITGS terminology in the response.

[5–6]: A balanced and detailed analysis of the issue which demonstrates thorough knowledge and understanding of the use of barcodes / RFID tags. Relevant examples from the scenario are used throughout the response. There is appropriate ITGS terminology throughout the response.

(c)   Airlines have databases that contain data about passengers when tickets are booked. This data includes travel dates, itineraries, contact details, passport details and passengers' home addresses. When passengers purchase a ticket online from an airline company, they have to accept the airline's terms and conditions by clicking "Agree" (see **Figure 2**).
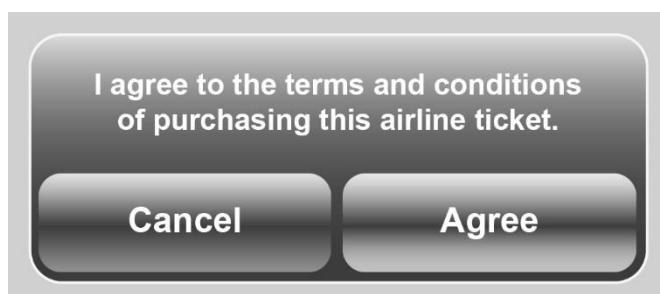
Within these terms and conditions, it states that the airline may receive a request to share this data with the government of the country to which the passenger is flying.

Discuss whether airlines should share the passenger's data with the government of the country to which they are flying.   **[8]**

Answers may include:
- airlines or passengers may see sharing this information as unethical or a breach of privacy which may raise wider issues and affect their business or business model
- airlines may feel that if passengers are aware that the airline sharing their data they may decide not to use the airline and opt for one that does not have data sharing agreements
- sharing passenger data might help protect countries from terrorist attacks or other criminal activities (*eg* passengers may be on a "watch-list" in the destination country)
- sharing passenger data may allow governments to respond more effectively if the passenger needs to be traced/contacted urgently during their stay in the country
- governments can track and analyze tourism data for planning workforce, infrastructure *etc*
- will the additional time and effort the airline spends on highlighting this data sharing agreement be cost effective? In other words, do passengers need to know, or are passengers likely to care?
- airlines may feel that passengers may not be concerned about their data being shared, or they may just accept that this will happen as it is "out there", regardless of whether they agree with it or not
- if airlines group together they could form associations that can set policies about what data should be shared/should not be shared with governments which may make passengers feel more confident about the confidentiality of their data
- governments may require that airlines make this data sharing available and part of the ticket purchasing process, so the decision may be effectively made for the airline.

Please see generic markband information sheet on page 20.

2.   Apurimac Health Centre

Note to examiners.
- *All part a questions are marked using ticks and annotations where appropriate*
- *Part b and part c are marked using markbands. Use annotations and text comments to provide a rationale behind the marks you awarded. **Do not use ticks.***

(a)   All computers have input and output devices.

   (i)   Identify **one** input device.   **[1]**

         Answers may include:
         - keyboard
         - mouse
         - camera/video camera/webcam
         - microphone
         - scanner
         - touch-screen
         - accelerometers
         - joystick/gaming controller
         - optical character reader/barcode reader/magnetic stripe reader.

         NB: *If candidates suggest a valid input device not listed here please check with your team leader before awarding marks.*

         *Award **[1]** for identifying input device up to maximum of **[1]**.*

   (ii)   In addition to a printer, identify **one** output device.   **[1]**

         Answers may include:
         - screen/monitor (accept TV, SmartTV, *etc*)
         - speaker/loudspeaker
         - projector
         - plotter.

         NB: *If candidates suggest a valid output device not listed here please check with your team leader before awarding marks.*

         *Award **[1]** for identifying output device up to maximum of **[1]**.*

   (iii) Identify **one** characteristic of random access memory (RAM).   **[1]**

         Answers may include:
         - temporary storage area
         - volatile memory – it is erased when the computer is turned off,
         - work area for running programs including the operating system, application programs and data
         - the type of memory that can be written to and read by the processor and other devices
         - memory locations can be accessed directly/in any order.

         *Award **[1]** for identifying each characteristic of random access memory (RAM) up to maximum of **[1]**.*

(iv) Identify **one** activity carried out by the health centre that would be easier to do with spreadsheet software. **[1]**

Answers may include:
- budget for the centre
- inventory of medicines
- keep a list of patients' visits
- staff wages
- producing graphs/charts (*eg* patients presenting different symptoms/ ailments, *etc*).

NB: *Do not accept responses that simply state "store patient records".*

Award [1] for identifying each activity carried out by the health centre that would be easier to do with a spreadsheet software using the computers up to maximum of [1].

(v) Identify **two** characteristics of an internet service provider (ISP). **[2]**

Answers may include:
- company that may also provide access to email
- will provide an Internet plan, for a fee, to give the user access to the internet
- may provide additional features (*eg* antispam)
- web hosting
- assigns bandwidth/data transfer limits to customers
- may offer support/help services to customers
- may track and store customer usage history (*eg* websites visited, *etc*)
- may provide hardware to users (*eg* modems/routers/WAPs)
- provides users with an IP address
- ISP provides/acts as a gateway for packet transfer/forwarding packets.

NB: *Do not accept simply "connects to the internet" without any identification of a characteristic (eg a plan/subscription package, etc).*

Award [1] for identifying each characteristic of an internet service provider (ISP) up to maximum of [2].

(b)   Medical students in Peru must spend six months training in rural areas during their medical studies. Apurimac Health Centre has been selected by the medical school in Cusco as a place to send students for training every year.

Analyse the impact on the medical student of spending six months training in a health centre with limited Internet access.   **[6]**

Answers may include:
- students will need to ask a local doctor or rely on their knowledge from school/ will not be able to research on the Internet when in doubt/will not be able to collaborate with online with experts
- may feel frustrated and not do the job properly
- medical students may want to take their own IT devices (phones with internet access plans, computers, tablets), which could lead to different issues such as those linked to security, patient's data privacy and the use of different platforms
- will not have facilities such as teleconferencing with experts (*eg* for guidance during a difficult medical procedure)
- will not have access to fast results (*eg* if a patient sees a specialist in Cusco results would need to be posted back to Apurimac)
- limited access might result in less distractions (*eg* social media) and greater focus on work
- may help students become more able to cope with similar situations met later on in their careers.

[0]: No knowledge or understanding of ITGS issues and concepts. No use of appropriate ITGS terminology.

[1–2]: A limited response that demonstrates minimal knowledge and understanding of the impact.

[3–4]: A partial analysis, either lacking detail or balance, that demonstrates some knowledge and understanding of the impact on medical students. Some relevant examples from the scenario are used within the response. There is some use of appropriate ITGS terminology in the response.

[5–6]: A balanced and detailed analysis of the issue which demonstrates thorough knowledge and understanding of the impact. Relevant examples from the scenario are used throughout the response. There is appropriate ITGS terminology throughout the response.

(c)   Juan has a limited budget and has two options:
- install a network and pay for an Internet connection, or
- spend the money on training the doctors to use the IT system, acquiring modern software and installing diagnostic tools on the standalone computers.

Evaluate these **two** options.   **[8]**

Answers may include:

Advantages of installing a network and internet connection
- computers in the network can share resources (hard disk for files, printers)
- doctors with an internet connection can do research when needed
- doctors can consult other doctors not in the area and share images/share test results
- software can be installed on the network and shared (if license allows it)
- doctors will have access to online training in IT and in their professional capacity
- doctors can backup data to the cloud to guard against data loss if computers are damaged/stolen
- internet access may include WiFi (allowing doctors to use personal devices/ expand the network beyond the six desktop computers).

Disadvantages of installing a network and internet connection
- installing a network might require bringing an IT expert to install it
- appoint a network administrator
- if the network is down lack of skills/funds may mean patient records are inaccessible
- connection to the internet may increase the risk of malware infecting computers/risk of unauthorised access. Centre may need to install and maintain anti-virus software/firewall*, etc*.

Advantages of standalone computers: IT training for doctors, acquiring modern software, installing diagnostic tools
- patients may be treated more effectively with doctors receiving constant IT training
- modern resources may help doctors do their job better and the centre's patients will benefit from these improvements directly
- IT training will improve the use of computers – better service to patients (record keeping, follow ups)
- less skills required to manage standalones
- if one computer is down it will not impact the others/other computers can still be used.

Disadvantages of standalone computers: IT training for doctors, acquiring modern software, installing diagnostic tools
- software needs to be installed in every computer (licencing) or only in some and this might be a difficulty
- all the disadvantages of lack of collaboration with experts in other places/online resources
- may need to employ trained staff to maintain/configure the stand-alone computers.
- data held on computers may become unreliable (*eg* data updated on one computer may not be updated on another).

Please see generic markband information sheet on page 20.

3. Updating the Wisconsin High School (WHS) database

Note to examiners.
- *All part a questions are marked using ticks and annotations where appropriate*
- *Part b and part c are marked using markbands. Use annotations and text comments to provide a rationale behind the marks you awarded.* ***Do not use ticks.***

(a) (i) Identify **two** ways of preventing parents from making mistakes when entering data on the online form. **[2]**

Answers may include:
- drop down list
- data validation rules
- range check
- data type check
- presence check
- character check/format check
- double-entry of data (data verification)
- check-box added to the data entry form for the parent to confirm that all the data entered is correct.

Award [1] for identifying each way parents can be prevented from making mistakes when entering data on the form up to maximum of [2].

(ii) Identify **two** characteristics of a relational database. **[2]**

Answers may include:
- two or more tables in the database are linked/joined using key fields
- a defined relationship between at least two tables within the database
- a relational database prevents redundancy as fields may be coded and related to a table that has the complete information
- it is faster to enter information into a relational database as codes may be used
- less storage space is used and long fields (for descriptions) may be replaced by codes from a related table
- less mistakes are made when entering data as entering a code is shorter than a complete description (less room for mistakes)
- data independence.

Award [1] for identifying each characteristic of a relational database up to maximum of [2].

(iii)   The school wants to consult a lawyer about the documentation that would be needed to send students to France during the summer holidays. They would like to search the database to find a parent who is a lawyer and has French as their mother-tongue (first language).

Outline the query that could be used to search for this information.   **[2]**

Answers may include:
- (List all parents) WHERE mother-tongue ="French" and profession="lawyer".

NB*: The WHERE and AND conditions do not need to be capitalized. Candidates may use other terms that clearly imply the same conditions. Use professional judgement for the parameters of the search in each of the two fields. If in doubt, check with your team leader before awarding marks.*

*Award **[1]** for identifying a condition:*
- WHERE condition
- AND condition

*Award **[1]** for identifying a parameter:*
- mother tongue="French"
- profession="lawyer".

*Maximum of **[2]** for the question.*

(b)   The developers of ColegiumWise may accept requests from clients such as schools for additions or changes to the system. The developers send out system upgrades and updated user manuals on a regular basis with the changes that have been requested by the schools and other clients.

Explain **three** different ways the upgraded version of ColegiumWise could be tested before it is sent to the schools and other clients.   **[6]**

Answers may include:
- MIS is tested by the development team (in-house or alpha testing – system). Accept responses that detail specific tests, *eg* regression testing, unit testing, testing the correct operation of validation rules*, etc*
- MIS is sent to a small number of schools and they are asked to try the new options (pilot/prototype, a part of agile development)
- a "test version" or "beta release" version of the MIS is made available that users may try and send comments on what they find (beta testing).

NB: *Candidates may detail the testing of more than one validation rule. Award marks for each different valid test explained.*

*Award **[1]** for identifying a way the system with the additions or changes may be tested before they send the upgraded version to the schools and **[1]** for a development of the way identified up to a maximum of **[2]**.*

*Mark as **[2]** + **[2]** + **[2]**.*

(c)   ColegiumWise has several key functions that cannot be changed. The contract with the developers of ColegiumWise is due to expire in 2018 and the administrators at WHS have two options:
  - continue with ColegiumWise, knowing that it will not have the specific functions required by the school
  - not renew the contract and develop their own school management information system (MIS) for the school.

Evaluate these options.   **[8]**

Answers may include:

Renew the contract
  - the ColegiumWise system is ready and can be used immediately as they have been doing
  - users are already familiar with the system and won't require any retraining
  - support provided by the ColegiumWise provider
  - changes requested by other schools (clients) may be useful to the school (client) as well
  - school may have to pay a costly licence while the system is being used
  - school may need to adapt some features they wish to include to what is offered by the software
  - some changes requested may take too long to be implemented
  - there will be further need for additional features over time so it is likely that the current MIS will become increasingly limited in the future
  - the school may have to include data in the database which they don't need but the system requires (which wastes their time).

Create their own
  - the system will be created to cover the school's exact needs (if possible)
  - the system may be adapted to changes that are introduced over time
  - a team will have to be appointed for the development of the system
  - the in-house system may take a long time to be created
  - the school (IT team) has the responsibility of the functionality of the system
  - the school (IT team) has the responsibility for the security of the stored data
  - new staff may need to be hired as current staff may not have sufficient expertise to develop and support the system
  - there may be additional requirements for hardware to run the new system
  - may involve more costs for development and training
  - migrating data from the existing (ColegiumWise) system to the new system may cause issues (*eg* data loss, incompatible formats, data types*, etc*).

Please see generic markband information sheet on page 20.

4. Wei Tan Enterprises

Note to examiners.
- *All part a questions are marked using ticks and annotations where appropriate*
- *Part b and part c are marked using markbands. Use annotations and text comments to provide a rationale behind the marks you awarded. **Do not use ticks.***

(a) (i) Define "bandwidth". **[2]**

Answers may include:
- in computer networks, bandwidth is the amount of data that can be carried from one point to another in a given time period of time (usually a second)
- bandwidth is expressed in bps (bits per second)
- speed of data transfer.

*Award **[1]** for each appropriate comment in the definition of bandwidth up to maximum of **[2]**.*

(ii) Identify **two** characteristics of a local area network (LAN). **[2]**

Answers may include:
- a computer network limited to a small area such as a building
- a group of computers and devices that share a common link (cable or wireless) to a server
- can be connected to other LANs
- can use a physical or virtual connection (VLAN)
- A LAN enables sharing of resources such as printers and storage.

*Award **[1]** for each appropriate characteristic of a LAN up to maximum of **[2]**.*

(iii) Identify **two** benefits for the IT department of moving from a locally-hosted email service to a cloud-based email service. **[2]**

Answers may include:
- the IT department will not need to provide the infrastructure (hardware and software) for email
- the IT department will not need to provide spam control
- the IT department will not be responsible for backing up the emails / Cloud services usually have several mirror servers
- the IT department will not need to provide storage space for emails / storage is done at the file servers of the provider
- the IT department will no longer be responsible for updates of the software / upgrades of the hardware.

NB: *the focus of the question is on **benefits for the IT department**, not simply benefits.*

*Award **[1]** for identifying each benefit on the IT department of moving from a locally hosted email service to a cloud-based email service up to a maximum of **[2]**.*

(b)   Email is often a fast and convenient way for colleagues in a company to communicate. However, it can cause problems in some offices.

Analyse the advantages and disadvantages of companies such as Wei Tan Enterprises using email as the main form of communication.   **[6]**

Answers may include:

Advantages
- keeps a record that the information was given
- save paper/resources
- easier to send messages that do not need an immediate response
- messages can be sent from different devices (computers, smartphones, *etc*)
- messages can be sent to multiple recipients
- can send and receive communications without having to physically find the person or deliver a note
- messages can be sent/received from people in remote locations (*eg* out of the office)
- messages can include links to resources and attachments (documents, presentations*, etc*) that would be difficult to share otherwise.

Disadvantages
- used inappropriately, for example sending unnecessary or inappropriate messages
- may lead to a reduction in face to face contact
- some messages are easier to deliver verbally so email is not an appropriate tool for sending messages of this type
- some messages are sent in haste and would be better if the content was thought through and re-read before they are sent by the owner?
- messages can be sent at any time, which may mean that employers expect employees to be connected at all times
- email records can be accessed to investigate/embarrass the company
- attachments could spread malware around the system.

*NB: Do not accept this point: "Emails may have very large files attached which will affect the bandwidth available to the company for other Internet related activities." **This is stated in the question stem.***

NB: If the student only refers to "companies" and not specifically to Wei Tan Enterprises, consider this as a reference to the scenario "companies such as Wei Tan Enterprises". Wei Tan Enterprises does not need to be explicitly named, but there must be a reference to companies.

[0]: No knowledge or understanding of ITGS issues and concepts. No use of appropriate ITGS terminology.

[1–2]: A limited response that demonstrates minimal knowledge and understanding of the advantages and disadvantages of companies such as Wei Tan Enterprises using email as the main form of communication and uses little or no appropriate ITGS terminology.

[3–4]: A partial analysis, either lacking detail or balance, that demonstrates some knowledge and understanding of the advantages and disadvantages of companies such as Wei Tan Enterprises using email as the main form of communication. Some relevant examples from the scenario are used within the response. There is some use of appropriate ITGS terminology in the response.

[5–6]: A balanced and detailed analysis of the issue which demonstrates thorough knowledge and understanding of the advantages and disadvantages of companies such as Wei Tan Enterprises using email as the main form of communication. Relevant examples from the scenario are used throughout the response. There is appropriate ITGS terminology throughout the response.

(c)   The head of IT has been monitoring the digital behaviour of Wei Tan Enterprises's employees. A number of bad practices have been found, such as:
- using "reply to all" when responding to emails
- downloading or streaming videos unnecessarily
- sending emails with large attachments.

Discuss whether the senior managers at Wei Tan Enterprises should focus managing employees' digital behaviour through an education programme, rather than by controlling their access to digital resources.   **[8]**

Answers may include:

Controlling
- controlling is a never-ending story/people may find ways to avoid controls
- an IT person needs to spend time checking what controls are needed and implementing them
- some behaviours cannot be controlled
- the IT department will have to: constantly increase resources (storage space/bandwidth/WiFi capacity)
- once a control is in place then, if effective, problem is solved (*eg* no videos can be downloaded)
- control may cause employee resentment
- controls may have unintended impacts (*eg* limiting attachment size preventing an important report from being shared, preventing access to useful videos*, etc*).

Educating
- education will take time/require training sessions/require constant reminders
- education will make employees better digital citizens and will improve their use of IT everywhere (not only at the workplace)
- education will make responsible users
- education spreads (once some understand the reasons, they can also become "educators"
- education may not be effective/employees may choose to ignore it.

Please see generic markband information sheet on page 20.

SL and HL paper 1 part (c) and HL paper 3 question 3 markband

Marks	Level descriptor
No marks	• *A response with no knowledge or understanding of the relevant ITGS issues and concepts.* • *A response that includes no appropriate ITGS terminology.*
Basic **1–2 marks**	• *A response with minimal knowledge and understanding of the relevant ITGS issues and concepts.* • *A response that includes minimal use of appropriate ITGS terminology.* • *A response that has no evidence of judgments and/or conclusions.* • *No reference is made to the scenario in the stimulus material in the response.* • *The response may be no more than a list.*
Adequate **3–4 marks**	• *A descriptive response with limited knowledge and/or understanding of the relevant ITGS issues and/or concepts.* • *A response that includes limited use of appropriate ITGS terminology.* • *A response that has evidence of conclusions and/or judgments that are no more than unsubstantiated statements. The analysis underpinning them may also be partial or unbalanced.* • *Implicit references are made to the scenario in the stimulus material in the response.*
Competent **5–6 marks**	• *A response with knowledge and understanding of the relevant ITGS issues and/or concepts.* • *A response that uses ITGS terminology appropriately in places.* • *A response that includes conclusions and/or judgments that have limited support and are underpinned by a balanced analysis.* • *Explicit references to the scenario in the stimulus material are made at places in the response.*
Proficient **7–8 marks**	• *A response with a detailed knowledge and understanding of the relevant ITGS issues and/or concepts.* • *A response that uses ITGS terminology appropriately throughout.* • *A response that includes conclusions and/or judgments that are well supported and underpinned by a balanced analysis.* • *Explicit references are made appropriately to the scenario in the stimulus material throughout the response.*