ITGS

Overall grade boundaries

Higher level

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 10	11 - 22	23 - 34	35 - 47	48 - 59	60 - 71	72 - 100

Standard level

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 11	12 - 23	24 - 34	35 - 46	47 - 57	58 - 69	70 - 100

Higher level internal assessment – portfolio and extension

Component grade boundaries

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 4	5 - 9	10 - 15	16 - 21	22 - 27	28 - 33	34 - 45

The range and suitability of the work submitted

In the November 2009 session there were some continuing trends from previous November sessions. First, there was a small improvement again in the number of the students obtaining the higher grades, but within this trend there were fewer students obtaining a grade of 7. Second, the quality of the extensions improved and as a result a number of students obtained a higher overall grade for the portfolio and extension compared to that of their three portfolio pieces alone due to the quality of their work in the extension. This demonstrates that the extension is an important part of the internal assessment at the Higher Level.

The main reason for not achieving a grade of 7 was that a significant number of portfolios did not include adequate and appropriate analyses and evaluations in Criteria B, C and D. Often students had performed a significant amount of research but the failed to properly critically analyse and effectively evaluate the results of the research. Teachers need to specifically teach the skills required for analysis and evaluation. One method for doing so is to provide students with research similar to that required for Criteria B, C and D, and the extension, and ask them to finish the exercise with appropriate analyses and evaluations. Example of portfolios and extensions from workshops, the OCC and previous students' work in the school could be used as a basis for this type of exercise.

Another factor that needed to be improved was the supervision of the portfolios and extensions as too many marks were lost that should not have been. Too often basic requirements were not fulfilled properly, particularly the details on the cover sheet, the format of the bibliography, the citation method, the headings for the interviews, the inclusion of the correct news item, the amount and type of research performed.

Also there were students from a few schools who had not used the revised versions of Criteria B and D. Criterion B has been significantly simplified by the removal of the requirements for 'trends and developments'. These schools did not seem to know about the changes to Criteria B and D that were published a significant time ago and came into effect for the May 2009 session.

The supervision of the choice of news item and interviewees improved this session but there were again choices that were not appropriate. Most students chose appropriate topics, performed detailed research and wrote very good portfolios and extensions. But there were also a number of topics chosen that were problematic for a variety of reasons: they were more about the technology itself than issues with IT, there were not enough resources to be found about the issues, they were about unusual and limited applications of IT, or about non-ITGS topics. Students need to be encouraged to investigate many of the issues that are now arising from the use of IT in the world today but some of these are not suitable for use in the portfolio. Students should not need to go far beyond the more common issues with the use of IT that are studied in the course to write excellent and interesting portfolios and extensions.

For the extension more students are taking the opportunity to use an introduction, which is not counted in the word limit, to state the issue and justify the choice of interviewee(s). Also the quality of the interviewee/s and the range and depth of the questions improved. Unfortunately criteria P and Q had not improved as much, especially in the use of supportive examples from the interviews and the portfolio.

More teachers included comments providing reasons for their marks on the work itself or a separate sheet of paper related to the key command terms in the various mark levels of the criteria, 'describe', 'explain', 'analyse', 'evaluate' that are defined at the back of the subject guide. Highlighting the actual sections on the student's work that show the analyses and evaluations is also recommended.

More detailed comments and suggestions about teaching, researching, writing and marking the portfolios and extensions were included in the May 2009 Subject Report and in material posted on the OCC. Teachers are recommended to review this material. Also on the OCC there is a detailed checklist that should be used for the planning, researching and writing of the portfolio and extensions. In the next section there is a comment about each criterion highlighting the main problems with each one.

Portfolio

Criterion A

In general the candidates provided a description of the issue and the IT system; but only outlined the main social and/or ethical impact/s related to the IT system, that needed to be explained in some detail.

Criterion B

In the new markscheme the focus needs to be on how the main technology works in some detail, and must directly connect the technology involved with the issue. This will include describing in some detail the components, and explaining how the various components of the system are interlinked.

Criterion C

Many candidates were able to describe and explain positive and negative impacts but fewer were able to analyse and evaluate. In some cases arguments were not backed up with cited research and in others there was an extensive use of quotes not critically analysed by the student.

Criterion D

Only one solution needs to be explained and evaluated. Also the explanation of how the solution solves the problem needs to be more detailed.

Criterion E

In some cases the sources were cited only by their URLs or the number of sources was not the minimum required what lead to loss of marks. In others the news item was edited. All the information from the web site should be supplied in the printout of the news item.

Extension

Criterion N

Was generally well done but in some cases was descriptive with too little analysis of the interview. Two interviews enable an effective comparative analysis to be performed more easily.

Criterion O

Candidates frequently discussed the results of the interview(s) when they should have compared the interview findings with their original research in the portfolio. Each comparison needs a substantial reference or quote to support it from both the portfolio and the interviews. A paragraph with a new idea based on the comparisons was relatively rare.

Criterion P

This criterion was problematic for a significant number of candidates who had difficulty projecting their own ideas. Generally there was a repetition of ideas from previous criteria. Each idea needs substantial support with quotes and references to the portfolio and the interviews.

Criterion Q

This was generally well done. The choice of interviewee(s) was appropriate and the questions were well formulated but often needed follow up in-depth questions. In some cases the header was not complete.

Criterion R

Usually the flow of ideas from Criterion N to P was consistent and focused, and the extension was written under the correct criteria headings.

Recommendations for the teaching of future candidates

Teachers should:

- Visit the OCC and obtain a PowerPoint titled “How to write the Extension” which provides helpful comments for teachers and students.
- Visit the special OCC ITGS forum where there has been a discussion of a sample portfolio and how it should be marked.
- Familiarise themselves with the new marking schemes for Criteria B and D available from the OCC.
- Attend an ITGS workshop to discuss teaching techniques, resources and samples of the Portfolio and Extension.
- Regularly check the latest postings on the OCC forum, contribute questions and answers, and post resources.
- Read carefully the individual school’s internal assessment feedback from the moderators for this and previous sessions.
- Read carefully the previous subject reports.
- Obtain copies of example portfolios and extensions, both satisfactory and very good, and discuss them with their students.

Standard level internal assessment - project

Component grade boundaries

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 4	5 - 8	9 - 12	13 - 17	18 - 21	22 - 26	27 - 35

The range and suitability of the work submitted

The ITGS projects were generally appropriate, although only a few were original. Most products were websites with a few other products such as databases, presentations and movies. Some students submitted products that are not acceptable using online templates or pre-determined designs that are usually included with online website editors. The majority of the products submitted were considered functional or at least partially functional, but usually not very complex

A number of projects are based on a pre-decided product and little effort was made to explain alternative solutions. Another serious problem was only one IT solution being presented in criterion H resulting in 0 marks for the criteria. Non-IT solutions are not considered.

A number of candidates received 0 marks for criterion J because they conduced only informal testing of the product or did not conduct any testing at all.

In some instances the assessment criteria is not clearly understood and marks were awarded for effort instead of assessing the report, product and logbook.

This report is an addendum to the extensive Project Report in the May 2009 ITGS Subject Report. As a follow-up to that report, a Project Checklist was developed. Both of these documents contain important information that is not repeated in this report and can be downloaded from the IB Online Curriculum Center (OCC).

Candidate performance against each criterion

Criterion G: Identifying the problem within a social context

The majority of the students performed very well on this criterion. However, the specific client for the project should be identified by name and position. The current short-comings of the present situation and the client should be stated explicitly. An interview with the client is recommended.

It must be clearly stated what problem(s) must be addressed and what functionality the IT solution must have so that Criterion L (the Product) can be assessed.

Criterion H: Analysis and feasibility study

Both solutions must be IT solutions should be explained as to how they address the need using IT. Some students forgot to choose one solution. This solution must be chosen with an explanation of how it actually solves the problem described in Criterion G.

Criterion I: Planning the chosen IT solution

There are five sections in criteria I: schedule, design, software, hardware, and data collection. All of the information for Criterion I must be included under the criterion heading and not scattered in Criterion H or the appendix. Screenshots from the making of the product and diagrams from the design must be integrated within the text in Criterion I.

Criterion J: Testing and evaluating the solution

Testing is still a weakness. Some students still do not realize the importance of the test-refine process and that all of the tests cannot be performed and then all of the refinements. The testing phase needs to be documented properly to specify who tested the solution, what testing tools were used, and how the product was improved. The recommendations made by testers on the questionnaires and the refinement both need to be clearly “justified” with screenshots.

Criterion K: Assessing the social significance of the product

Most students achieved low marks. The product needs to tested and implemented in order to “observe” an impact. The client should also be consulted about the observed and projected impact.

Criterion L: The End Product

Some reports showed lots of effort, but many products were not very well developed and did not show the level of IT skills expected for an ITGS student. Many end products were too simplistic.

Criterion M: The Log Book

Most logbooks had at least one sketch for the design stage. In most cases the final stages had not been documented and some logbooks did not have regular dated entries or evaluation.

Students need to be reminded to include drawings, flowcharts, and screen shots to help document their work. ITGS teachers need initial pages in the logbook at key stages of development.

Appendix

The formal completed questionnaires are required. The 8-10 screenshots from the completed product are not the same as screenshots included within Criterion I from the "making of the product". Directions for accessing the product must also be included.

Recommendations for the teaching of future candidates

- Read the ITGS Guides and carefully check the criteria requirements and command terms. Provide candidates with the new Project Assessment Criteria and the Project Checklist that have been posted on the Online Curriculum Center (OCC). These reflect changes to Criterion H and J in the ITGS guide which are no longer correct.
- Review the Project section of the M09 ITGS Subject Report
- Review the Project feedback sent to the IB Coordinator for the M09 ITGS sample projects.
- The teacher should use a project management process to check that each student follows the process described in the assessment criteria and consults with their client regularly. The candidate must satisfy the criterion for each stage before he/she is allowed to proceed to the next stage. The process must be well documented in the logbook. Criterion G, H and I should be planned in the logbook before beginning to make the product.
- Teacher should add comments in pencil and/or blue ink within the logbook and report the right margin indicating how the product, logbook and report were assessed. The teacher can provide the student with feedback on how well they have met the criteria on one draft of the report which the student is permitted to use to submit his final version.
- Teacher should participate in ITGS workshops to discuss the ITGS project and view sample products, reports and logbooks. Both face-to-face and online workshops are available.

- Post questions concerning the ITGS project in the Discussion Forum on the OCC. Review Special Events-Project Folder and the Folder summarizing all of the postings relating to the ITGS Project. (access by clicking on the words "Group 3: individuals and societies" menu bar at the top of the ITGS Discussion Forum

  or

  access by using the URL

  http://occ.ibo.org/ibis/occ/fusetalk2/forum/index.cfm?FTVAR_SUBCAT=1349&nocookies=y&subcatname=Group%203%3A%20individuals%20and%20societies%20|%20Groupe%203%20%3A%20individus%20et%20soci%C3%A9t%C3%A9s%20|%20Grupo%203%3A%20Individuos%20y%20Sociedades)

Higher and standard level paper one

Component grade boundaries

Higher and standard level

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 4	5 - 9	10 - 14	15 - 18	19 - 22	23 - 26	27 - 40

The areas of the programme and examination that appeared difficult for the candidates

Technical knowledge was lacking in many cases. This sometimes led to answers which were largely guesswork. Clear thinking was often lacking, where candidates jumped in and answered what they hoped the question was about without considering what was required more carefully. For example, parcel tracking was often interpreted as vehicle tracking.

The levels of knowledge, understanding and skill demonstrated

The paper did not test spreadsheets or databases this time, which led to slightly better performances in (a) and (b) questions. Part (c) questions were slightly better than usual, with many answers considering the scenarios from more than one viewpoint.

The strengths and weaknesses of the candidates in the treatment of individual questions

Question 1

a) Most candidates correctly mentioned some form of bar code reader. GPS was correctly identified by nearly all candidates.

b) Most candidates scored something here, realising that the package has to be scanned periodically. Many then went on to describe how to track the van rather than the parcel. The better ones realised that a database of intermediate points in the journey was involved and that it was updated in real time.

c) This was answered at least adequately by most candidates, with more than one reason being quoted in most cases. Few realised the importance of tracking in order to monitor company performance.

Question 2

a) Most candidates were able to make sensible comments about bandwidth issues, with the better ones commenting on the effects of lossy compression.

b) Many candidates were able to comment on the need for specific software or codecs for particular videos. Some also commented on the non-availability of some videos in certain geographic locations.

c) This was usually at least quite well done, with many candidates commenting on the videos as a form of advertising. The better ones also realised that links to theatres and booking agencies could further enhance the effect of showing the videos.

Question 3

a) Surprisingly few were able to describe what a text file is beyond saying that it contains text. The better candidates mentioned text formats such as ASCII and Unicode and the lack of formatting characters in text files.

b) The better candidates were able to relate the translation process to pattern matching, following a sensible step by step approach to their answers. Many were completely baffled by what was going on but sometimes just gained one mark for mentioning scanning.

c) Most candidates realised that bad or variable handwriting or non standard fonts could lead to misinterpreted OCR conversions. Some also used examples to demonstrate where ambiguities were likely to occur.

Question 4

a) It was remarkable how few candidates knew what a macro is. All candidates in this subject should have had experience at least in recording a macro in a common software package and realising the worth of macros in saving effort and standardising input and output.

b) Most candidates seemed unaware that word processing packages have many features in common with DTP, such as templates and image handling capability. Answers which could equally apply to word processing gained no credit. The better candidates commented on the better page layout control and how DTP can lead to camera ready copy which can be typeset directly.

c) Most candidates were aware of the importance of image and how a house style can give a good impression of an organisation. Many also mentioned how a standard style can make the production of documents more automated and therefore less effort.

Recommendations and guidance for the teaching of future candidates

The candidates must realise that this is not a subject where superficial knowledge (ie that possessed by the average person) and unsubstantiated opinions count for much. The subject is based on a foundation of technical knowledge from which social issues emerge. Learning the technical knowledge in some detail is not an optional extra, it is key to performing well.

Candidates MUST have practical experience of a fairly wide range of software techniques.

Discursive answers should contain technical detail and ideally cover more than one idea.

Higher level paper two

Component grade boundaries

Higher level

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 6	7 - 13	14 - 20	21 - 27	28 - 34	35 - 41	42 - 60

General comments

The Higher Level Paper Two examines all areas of impact. In this session Question 2 (Business and Employment) and Question 4 (Arts, Entertainment and Leisure) were common to both the Higher Level and Standard Level papers. Question 1 and Question 3 were specific to Higher Level and examined the remaining four areas of impact.

Question 1 was a straightforward question involving storage of sensitive personal information on a database. Database questions still tend to deter candidates and many responses showed little or no knowledge of relational databases.

Question 2, a common question, indicated that candidates were generally familiar with the technologies and issues involved in teleworking.

Question 3 was a fair, but rather challenging question as it thoroughly tested the candidates' knowledge of artificial intelligence and expert systems.

Question 4 covered a familiar topic and it was clear that those who chose this question had used *YouTube*.

The Grade Descriptors are used to determine the boundaries 1-7 at Grade Award. Teachers should be familiar with these Grade Descriptors and share them with their students.

For example, candidates who achieved a 7 for this paper provided fully developed answers where arguments were illustrated with appropriate examples. They were able to evaluate their findings to reach conclusions.

The areas of the programme and examination that appeared difficult for the candidates

Once again this session correct terminology was lacking from many responses. In 1a) knowledge of relational databases was poor and candidates talked about linked files or fields instead of tables. Data redundancy was sometimes mentioned but not understood. It seemed clear that students had tried to memorise definitions but had not actually used a relational database nor set up links using key fields. The problem with definitions was also apparent in 2a) and 3b). As in previous exams, candidates often confused integrity and reliability when discussing issues.

Recommendation

- Insist students maintain a glossary of IT terminology
- Ensure students understand the terminology relating to social and ethical issues
- Provide practical activities so students have first-hand experience of the technologies

Sometimes candidates became sidetracked with issues that did not arise from the technology. This occurred in 1d) where the focus was on storage of data. There was frequent reference to pain and discomfort to the child when extracting DNA. This is not an issue relevant to the DNA data.

Recommendation

- Remind students that ITGS focuses on the effects of **information technology** on individuals and society

Not a big problem, but still a cause of lost marks, was a failure to read the question. In 1b) many students suggested a search for a person's name, yet the question specifically asked how a 'person's DNA could be checked'. As 1d) asked for impacts on UK citizens cost of the data collection to the government was only relevant if there was a suggestion the government could pass on this cost to citizens via taxes. In 2d) environmental impacts were not relevant to the question.

Recommendation

- Encourage students to continually refer back to the question and highlight key words
- Suggest students begin paragraphs with phrases such as 'UK citizens may be concerned...' in order to maintain a focus on the question

All extended responses were marked according to the markband below. Lack of balanced answers, failure to provide opinions and weak, unsubstantiated arguments prevented candidates attaining the higher marks. In most cases responses were linked to the stimulus material and it was common to see attempted analysis. Sustained analysis was less obvious and it was rarer to find students gaining 9-10 marks

Markband for all extended response questions

Opinion ***discuss, evaluate, justify, recommend and to what extent***	***0***	No knowledge or understanding of IT issues and concepts or use of ITGS terminology.
	1–2 marks	A brief and generalized response with very little knowledge and understanding of IT issues and concepts with very little use of ITGS terminology.
	3–5 marks	A response that may include opinions, conclusions and/or judgments that are no more than unsubstantiated statements. The response will largely take the form of a description with a limited use of ITGS terminology and some knowledge and/or understanding of IT issues and/or concepts. If no reference is made to the information in the stimulus material, award up to **[3 marks]**. At the top end of this band the description is sustained. At the lower end of the band a tendency towards fragmentary, common sense points with very little use of ITGS terminology.
	6–8 marks	A response that demonstrates opinions, conclusions and/or judgments that have limited support. The response is a competent analysis that uses ITGS terminology appropriately. If there is no reference to ITGS terminology the candidate cannot access this markband. There is evidence that the response is linked to the information in the stimulus material. At the top end of the band the response is balanced, the response is explicitly linked to the information in the stimulus material and there may be an attempt to evaluate it in the form of largely unsubstantiated comments. There is also evidence of clear and coherent connections between the IT issues. At the lower end of the band the response may lack depth, be unbalanced or tend to be descriptive. There may be also implicit links to the information in the stimulus.
	9–10 marks	A detailed and balanced (at least one argument in favour and one against) response that demonstrates opinions, conclusions and/or judgments that are well supported and a clear understanding of the way IT facts and ideas are related. Thorough knowledge and understanding of IT issues and concepts. Appropriate use of ITGS terminology and application to specific situations throughout the response. **If there is no reference to ITGS terminology candidates cannot access this markband.** The response is explicitly linked to the information in the stimulus material. At the lower end of the band opinions, conclusions and/or judgment may be tentative.

For example in 2d) successful candidates considered benefits to both stakeholders (employers and employees). In giving their opinions they analysed the limitations of teleworking. Many candidates considered workplace flexibility to be a major benefit to employees. It was felt that this flexibility increased employee motivation, hence improving performance. This benefit could impact the employer as company profits may rise. Increased motivation, however, was tempered by distractions at home which could have the adverse effect on productivity. Many candidates noted that it was difficult for an employer to monitor the employee, thus compounding the problem. Employee monitoring concerns and solutions (eg online meetings) enabled candidates to show their knowledge of the underlying technologies. Good candidates often provided opinions throughout the answer and then wrote a substantial conclusion at the end.

Recommendation

- Explain to students how the markband is used to mark extended responses
- Show students how to plan and structure an extended response
- Allow students to practise extended writing using past exam questions
- Share examples of good responses with students
- Use the markband when assessing extended responses in class tests
- When students research issues suggest they document examples from their research as these could be valuable for substantiating arguments in exams
- Run class role-plays where students take the parts of various stakeholders

Handwriting was sometimes illegible. It makes the examiner's job difficult and poor handwriting can disadvantage the student when key words cannot be deciphered.

Recommendation

- Insist the students take the time to write as clearly as possible
- Make students handwrite class tests
- Advise students to use new paragraphs for separate points, to leave line spaces between part questions and to start a new question on a new page

ITGS terminology refers to both the IT technical terminology and to the terminology related to social and ethical impacts. In extended responses for Questions 1-3 students were able to access the higher markbands if there was more emphasis on the terminology related to social and ethical impacts and less on IT technical terminology. In Question 4, in order to access the higher markbands, markers were expecting a balance in the ITGS terminology between IT technical terminology and the terminology related to social and ethical impacts.

The levels of knowledge, understanding and skills demonstrated

Most candidates appeared to carefully choose their three questions. They were generally familiar with the command terms. Although opinions and conclusions were often missing or weak there was evidence of analysis in extended responses. It was clear where teachers had stressed the importance of a sound understanding of the technology as their students referred to the underpinning technology in their extended writing.

The strengths and weaknesses of the candidates in the treatment of individual questions

Question 1

a) Candidates lacked knowledge of relational databases and used incorrect terminology. They spoke of linked files or linked fields instead of linked tables. Although some realised that relational databases reduce data redundancy they did not understand the concept. It was clear that many candidates had not used a relational database.

b) It was disappointing that few candidates recognised the need to convert the DNA data into digital code. Many students described data collection, data matching in the database and retrieval of the suspect's details. Some candidates did not read the question and suggested name searches.

c) A good knowledge of security measures was displayed. Answers included passwords, firewalls, encryption and backup procedures.

d) Answers went off course when candidates failed to focus on the word data and discussed health risks or discomfort to the child. Many negative impacts were suggested and these were balanced by advantages such as early disease detection or fast identification of bodies in a disaster.

Question 2

a) Most candidates could identify the file name but many had trouble with the domain name.

b) Some candidates suggested registering through a domain name registrar and many realised that registration can be done through ISPs. Others were aware of the possibility of purchasing a domain name that is already in use. The second part of this question was well answered.

c) Technical issues were usually well explained and many candidates scored full marks for this question.

d) Although opinions and conclusions were often weak or lacking candidates showed a good knowledge of the benefits and drawbacks of teleworking for employers and employees.

Question 3

a) Not all students wrote enough for 2 marks but most could score 1 mark. Some made no mention of a computer.

b) This question tested their understanding of AI and expert systems. Students who had studied this topic often scored high marks. Common answers compared the use of a knowledge base with problem solving using human-like thought processes. Many students realised that, unlike expert systems, artificial intelligence incorporates the ability to learn from mistakes.

c) Successful candidates applied their knowledge of AI to this question. They generally wrote about learner-centred environments where learning the game of the user and modifying the experience of the player according to past performance can make the game more challenging and interesting.

d) Candidates who chose Question 3 were generally knowledgeable about the use of games to train soldiers. They were able to analyse the benefits, such as learning from mistakes in a safe environment, and considered the limitations where approximations to reality may give the soldiers a false sense of security. Excellent answers included specific examples to back up arguments.

Question 4

a) Two kinds of information such as name, date or length of the video were easily identified.

b) Suitable answers related to the need to distinguish humans from machines and the problems with automated systems entering false information or sending spam.

c) This question was well answered and a variety of suggestions, such as online agreements, automated or manual checking and reports from other users were accepted.

d) Some candidates went no further than to describe or list other uses of *YouTube.* Good candidates provided balanced opinions by considering the various uses and the extent to which these uses are limited by concerns. These concerns included misinformation (eg in educational use), privacy (eg in uploading personal details for prospective employers) and lack of reliability (eg in political campaigns where videos could be manipulated).

Recommendations and guidance for the teaching of future candidates

- Visit the OCC where you can share resources and join the very active ITGS forum
- Check the IBO events calendar on the OCC for details of workshops in your region
- Share this Subject Report with your students
- Read the Grade Descriptors downloadable from the ITGS home page on the OCC

Standard level paper two

Component grade boundaries

Standard level

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 7	8 - 14	15 - 20	21 - 27	28 - 34	35 - 41	42 - 60

General comments

- Candidates do not understand the nature of the response required for the various command terms used on examinations.
- There is an insufficient or inappropriate use of ITGS terminology, this means terminology and (in many cases) knowledge relating to IT systems as well as terminology relating to social and ethical impacts.
- An absence of planning structured extended responses (questions part d) and the absence of specific examples to support arguments (questions part b, c and d). Often responses lacked depth and went “off-course”.
- Many extended responses only elicited common sense answers which did not indicate that a student had attended an ITGS course.
- Very few candidates were able to reach the upper levels of the markband used for extended response questions (part d).

The areas of the programme and examination that appeared difficult for the candidates

The main concern is the lack of knowledge of IT terminology and concepts that demonstrate that the student has actually studied all of the topics in the ITGS Guide to the required depth. In extended responses (part d), candidates demonstrated weaknesses in:

- Describing issues
- Providing specific examples
- Analysing impacts
- Providing well-substantiated, balanced arguments
- Reaching conclusion(s) or providing opinion(s).

The levels of knowledge, understanding and skills demonstrated

Most candidates displayed a basic understanding of their three chosen questions.

It also seemed that candidates were aware of the requirements when asked to describe step-by-step processes in HL Questions 1 and 2, the common HL and SL Question 4 and SL Question 5. However, some of the description would have been clearer if the candidates had actually numbered the steps in their processes.

The strengths and weaknesses of the candidates in the treatment of individual questions

Question 1

a) Surprising how many students could not identify the domain name and file name.

b) (i) Many students did not know how to register a domain name.

(ii) Students did reasonably well on describing why a company would prefer to use a domain name for its website rather than an IP address.

c) This question can be anticipated and was not always addressed well: two technical issues that need to be addressed in order for an employee to be able to telework.

d) This response simply lacked planning, detailed examples and structured responses. Some candidates did not address both benefits to employees and employers.

Question 2

This question was popular with many candidates and was answered well.

a) Most candidates know what a search engine is but find “defining” it difficult.

b) Most candidates demonstrated only a general understanding of “rank order” and had some difficulties providing details.

c) This question was answered very poorly and was at time misunderstood.

d) Candidates performed reasonably well on determining to what extent the decision to not allow students to quote public information from web sites such as Wikipedia is justified.

Question 3

Candidates seemed familiar with the actual Wii and this was a popular question.

a) Candidates demonstrated a lack of knowledge about ‘simulations’ and being able to apply it to the Wii.

b) Most students attempted to describe two reasonable potential uses of the technology incorporated within the Wii video game console.

c) There was a good understanding of how two devices that are not physically connected can communicate with one another.

d) Responses here were quite variable from one candidate who had experience with healthcare of elderly using a Wii console to responses attempting to project the impacts of the use.

Question 4

YouTube was also a favorite question.

a) Almost all students could identify two kinds of information that are stored about online videos.

b) The CAPTCHA question did cause some students difficulties and this question demonstrated clearly when students were simply guessing.

c) Students could explain reasonably well how video services could ensure that videos uploaded by members comply with copyright laws.

d) It was actually surprising how many students were not able to cite actual examples of where videos in YouTube are used for purposes other than leisure and entertainment. It would be expected that the responses would have been better on this question.

Question 5

Like most database questions, this one was not answered by many candidates and not answered well by those who attempted it.

a) The accurate definition of a relational database proved difficult for many students.

b) The question clearly expects a step-by-step process and this was not often provided. The responses lacked IT terminology and concepts.

c) Again there were difficulties in explaining two security measures with reasoning.

d) The extended response question lacked reasoning to support judgments and the evaluation of impacts on UK citizens of collecting DNA data from children at birth. Poor development and lack of planning.

Question 6

Students who answered this question did not always demonstrate that they really knew what e-voting actually was.

a) Students did not always clearly identify two ways that an e-vote could be cast.

b) Vague reasons were given why governments would encourage e-voting, but not always described with enough detail.

c) Two methods were identified, but not explained, how governments can prevent people from casting votes using a false identity.

d) Students did not read the question carefully to realize that they needed to address all three stages before, during and after the votes have been cast.

Recommendations and guidance for the teaching of future candidates

- Ask students to prepare a glossary of IT terminology – this will improve their answers to early parts of each question
- Ensure students understand ITGS issues
- Explain the requirements of the command terms – a few candidates wrote more for *define* than *evaluate*
- Guide students on the depth expected for parts a-d
- Teach students how to analyse impacts and provide well supported opinions – this will improve extended responses

- Help students to differentiate between the terms describe and explain – often candidates did not provide a reason for an *explain* question
- Guide students in planning answers to extended responses - this creates a more structured response, avoids repetition and usually avoids answers that go off course
- Show students how markbands are used for extended responses – always use markbands for class tests
- Use past exam questions for class tests - provide feedback according to the markbands
- Advise students to carefully read the stem of the question and underline keywords – this should prevent them going 'off course' in their answers
- Suggest students use opening sentences such as 'From the perspective of the government - this should keep answers focussed
- Run class debates on extended response questions where students represent stakeholders and opposing views – this should assist with planning extended responses
- Share current news items in class and ask students to explain the technology, identify the stakeholders and discuss the impacts – this is good practice for extended responses
- Encourage students to start each question on a new page and separate issues with line spaces – marking can be very difficult when writing is illegible and it is unclear where the next issue starts
- Share this Subject Report with your students

Advice to teachers

- Visit the OCC where you can share resources and join the very active ITGS discussion forum
- Check the IBO events calendar on the OCC for details of workshops in your region or ITGS online workshops.

Higher level paper three

Component grade boundaries

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 3	4 - 7	8 - 11	12 - 15	16 - 19	20 - 23	24 - 30

The areas of the programme and examination that appeared difficult for the candidates

The performance of this paper was not as good as last year. In many cases the technical knowledge was poor especially with reference to the specific terms detailed in the stimulus material. However, there were gratifying examples where some candidates had clearly looked up to them and benefited from researching up to date topics.

A recurring problem was that many candidates lost marks by not quoting specific examples that they had researched. Candidates must be aware that, when the question asks for examples of organisations related with the case study, they will not be able to reach the higher marks if they did not do so.

Most students were able to identify general measures to minimize the carbon footprint but only few of them mentioned measures to reduce the energy consumption by making changes to the infrastructure of a computer installation.

Some candidates did not always understand that the response must be focused in the context of the question. As a consequence they explain measures or technologies that are not applicable to the situation described.

The levels of knowledge, understanding and skill demonstrated

Better candidates showed a good understanding of the case study and the issues relevant to the use of the technology. They were also able to quote examples derived from their research.

In other cases it was apparent that they had not undertaken any independent investigation.

These responses also showed that the technical knowledge is often superficial. This was evident in Question 3 were the answers were common sense points with only a few inclusion of IT terms without any beyond a most superficial discussion of the technologies involved.

The strengths and weaknesses of the candidates in the treatment of individual questions

Question 1

a) Most candidates know what an IP address was. Some of them showed understanding of the meaning of the octets

b) Very few know what a MAC address was despite of the fact that it was included in the case study glossary.

Question 2

a) This was another question that offers problems for the weaker candidates. The better ones know that the principal function is to allocate IP addresses. This is particularly important when new workstations are added to a network assisting in this way to the work of the net administrator. This term was present too in the glossary.

b) Most candidates wrote about videoconferencing and teleconference but did not explained technically how this technologies work and what are the elements necessary to carry them on.

Some mentioned VoIP and VLE (virtual learning environment)

Only few students refer to forms of reduce energy consumptions in the computers systems themselves.

Question 3

In general the suggestions were very general, firewalls, encryption methods, anti viruses, anti spam etc. The best candidates mentioned details about hiding SSIDs, MAC filtering, use of WAP2.

As mentioned in previous reports, the case study needs to involve extensive research about the specified scenario, it is required that the candidates demonstrate that this work was done quoting the examples especially in the extended response question. Only very few quoted specific instances of how other organizations have approached the issue in question.

Most answers were descriptive and evaluation of the different solutions was in general not present.

Recommendations and guidance for the teaching of future candidates

- Advise students to carefully read the steam of the question, this should prevent them going “off course” in their answers.
- At the end of the stimulus material there is a list of terms in order to keep the material up to date and relevant for the scenario. These terms are always included in the questions. Teachers should review the terminology with the students at length.
- It is essential that the students carry out an extensive investigation about the situation presented in the case study. When it is required by the question they must refer to this research, quoting organizations and systems that they have researched. Candidates will never achieve the highest marks without mentioning details and names
- Teach candidates how to evaluate. Give them examples of a balanced answer (advantages/disadvantages) and then make them provide opinions/appraisals/ judgments.
- Teachers have to instruct candidates that if a question asks specifically for two methods or two strategies, treatment of more than this number will be ignored by the examiner possible leading to lost marks.
- Candidates must realize that this component is more technically orientated than the others and general knowledge or vague opinions are not a substitute for detailed facts