

ITGS

Overall grade boundaries

Higher Level

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 10	11 - 22	23 - 35	36 - 46	47 - 59	60 - 70	71 - 100

Standard Level

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 9	10 - 21	22 - 32	33 - 44	45 - 57	58 - 69	70 - 100

Higher and standard level project

Component grade boundaries

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 3	4 - 7	8 - 10	11 - 14	15 - 18	19 - 22	23 - 30

Recommendations for IB procedures, instructions and forms

- Project samples must be completely digital and follow the Handbook of Procedures (Section B3.5 Information technology in a global society: project).
- Each candidate is expected to submit their Project in a zip file.
- The zip folder that contains each candidate's work must be clearly labelled with the session number and surname of the candidate.
- The screencast should be located in the top level folder.
- For each candidate the teacher will submit a completed form 3/CS as a PDF and enclose it within the top level folder.
- For each candidate it is recommended that the teacher adds an explanation for the awarding of the marks as a PDF file within the top level folder.

Link:

https://ibpublishing.ibo.org/server3/apps/handbook/index.html?doc=d_0_dpyy_vmx_1409_1_e&part=16&chapter=5

- The correct digital version of the signed 3/CS form for each year must be used from the Handbook of Procedures.
- Screencasts are required and must be submitted. This is especially important in instances where the moderator may not have access to particular software tools that the candidate used to create their product. This includes all database products. Both Access and FileMaker Pro are platform dependent.
- Products must be submitted in the Product folder in the original file format and in a cross-platform format. For example, a DTP product may be submitted as an Adobe InDesign product, but must also be submitted in PDF format as well.
- No product folder may be left empty. In instances where a templated product cannot be exported from an online website, sufficient evidence from the making of the content must be provided in the content folder.

The range and suitability of the work submitted

For the most part, the ITGS Projects identified a real client and a problem that required an IT solution. In most projects, the choice of the clients and nature of the projects were appropriate. However, it was clear for many candidates that the fear of failure was greater than the desire to excel. Many projects from some schools were very similar to one another and not very challenging. For example, there were a large number of websites which were of a simple nature and made with the help of web based editors.

Some projects arrived after the deadline which can cause problems, especially if there are administrative problems.

Candidate performance against each criterion

Criterion A

In many cases the questions in the consultation interview did not support the other parts of Criterion A very well. The questions were not well formulated and did not adequately explain:

- The candidate's problem.
- What the inadequacies of the present situation are which includes what solutions/approaches have been tried and why they have not worked.
- What key items the IT solution must address.

In the investigation document, most candidates identified a real client and a problem that required an IT solution; however, they did not properly approach the "inadequacies of the

present situation". The inadequacies of the present situation tended to be explained very superficially. To achieve higher marks for this criterion, candidates need to precisely describe the present situation in order to explain what is wrong with it (the inadequacies).

Criterion B

Details were often lacking. The most common problem was that hardware requirements / specifications and software versions were not provided. The relationship between criteria B, D and F was often not recognized. There were inconsistencies between IT systems identified in this criterion and the tools used to create the product in Criterion E. The specific performance criteria were not clearly stated and often were phrases that could not be tested and evaluated. The explanation of why the IT solution was chosen was often generic and not specific to the problem it was aiming to solve.

Criterion C

Candidates must provide a detailed schedule of the tasks involved in all the phases of the project. Unfortunately this was often not the case; most schedules were not detailed enough and/or did not address all the phases. Also, in many cases the entries were not specific to the client, problem and product; instead they were generic entries that could apply to any IT product of a similar type.

Criterion D

Candidates need to research what is an appropriate way to show the overall and the internal structure for the type of product they are developing. All resources that will be used in the making of the product must be acknowledged. The techniques identified should include the complex (to become "appropriate" from May 2015) ones that will be justified in Criterion E, and also other appropriate ones that were used in the development of the product. There should not be inconsistencies between the design of the product (Criterion D) and its development (Criterion E). Testing should address those aspects of the product that ensure that the specific performance criteria in Criterion B have been met. Criterion D must have an actual signature from the client; a word processed "signature" will not suffice.

Criterion E

After listing the techniques, the candidate must show the structure of the product and explain the reasons this structure. This was often omitted. In many cases candidates provided screenshots and some description of the techniques including how they were used, but rarely did they go further to justify the use of these techniques. When code is included as a technique, it must be documented and including screenshots to show the effect of that code. Screenshots must be large enough to be legible. Arrows, circles and other markings need to be used to show the particular aspect of the screenshot being referred to in the text.

Criterion F

Most candidates addressed the specific performance criteria which they presented under Criterion B. The feedback from the client should address three aspects of the project:

- The effectiveness of the process of development and consultation with the client throughout the process.
- To what extent the specific performance criteria in Criterion B were met.
- Recommendations for future development of the product. This should not include modifications that were necessary in the current product.

Criterion G

Most candidates used correct folder names and file names. However, in many cases the "Product" folder was not well organized and candidates need more advice in this area. Products must be fully functional. The screencast must demonstrate that the product is functional and also explain the techniques in referred to in Criterion E.

Recommendations and guidance for the teaching of future candidates

Teachers need to guide candidates criterion-by-criterion and provide appropriate feedback after each criterion before the candidate is allowed to proceed to the next stage. Teachers need to be familiar with the following information regarding the ITGS Project and engage in additional professional development regarding the ITGS Project wherever possible, Information sources for the project:

- ITGS Guide (pages 56-72)
- Teacher Support Material (Internal Assessment)
- Forms.zip templates
- Guidance on the appropriateness and complexity of an IT solution for the project
- OCC ITGS Project FAQs
- ITGS Subject Reports for all sessions from May 2012.
- Handbook of Procedures for the Diploma Programme (updated yearly)
- Relevant information in the Coordinator Notes (published quarterly)

Additional professional development for the project:

- ITGS OCC discussion forum
- ITGS online workshops (Category 1, Category 2)
- ITGS face-to-face workshop (Categories 1 & 2, Category 3)

Candidates need to be cautioned that the exemplars in the Teacher Support Material (TSM) are not to be used as templates. Candidates must adhere to Academic Honesty and the ITGS Project must be their own work.

Further comments

Teachers and candidates must note that from May 2015 Criterion E and Criterion G have been modified. The new criteria are posted on the ITGS Subject Page of the OCC.

Link:

https://ibpublishing.ibo.org/server3/apps/handbook/index.html?doc=d_0_dpyyy_vmx_1409_1_e&part=16&chapter=5

Higher level paper one and standard level paper one

HL Component grade boundaries

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 8	9 - 16	17 - 26	27 - 34	35 - 43	44 - 51	52 - 80

SL Component grade boundaries

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 6	7 - 12	13 - 19	20 - 26	27 - 33	34 - 40	41 - 60

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

There were no major areas of the course that appeared difficult for the candidates on the Standard Level paper (which includes the common questions), although some aspects of individual questions proved problematic. One example was the concept of data mining, which few candidates demonstrated much understanding of, in particular how data mining differed from simply querying a database.

There were more examples of areas that proved difficult in Higher Level Paper 1 that are described below:

Question 4; Disaster management strategy. Candidates found this a challenging topic and most candidates who chose this question did not achieve a high mark. For example, in part b, candidates were unable to explain three considerations that should be included in a feasibility study to ensure that the VPN meets the requirements of the tax office.

Question 5; Waterfall and agile. Candidates also found this challenging; and of the few candidates who chose it, many demonstrated a limited understanding of the topic.

Question 6; Malpractice, the victim's family sues the maker of faulty surgical robot. In part b many candidates were unable to provide an adequate analysis of the patient's decision about whether robotic surgery was appropriate, while in part c many simply failed to answer the question.

Question 7; Artificial intelligence in the classroom. In part b(i) candidates were not able to explain the relationship between the knowledge base and inference engine. In part c they were unable to discuss the extent to which robots should replace teachers.

The correct use of IT and/or ITGS terminology in this paper was a challenge for many candidates. The main weaknesses were when analyzing, expressing and developing ideas they incorporated the IT/ITGS terminology appropriately.

Reading the question: many candidates did not read and identify the key words in the question. As a result, they either partially addressed or did not answer the question that was asked. For example, in question 1a(i), instead of the candidates focusing on providing advantages of using RFID smart labels, they provided advantages of the Magic Medicine Cabinet. This was even more evident in question 1b where instead of comparing two methods of training / instruction they attempted to explain how to use the blood pressure monitoring device.

Developing ideas: In part c of the questions, most candidates do not go much beyond listing, so they do not provide coherent or well developed arguments. It is common for the same argument(s) to be repeated throughout the response. For these extended responses, ie those that use a markband, candidates need to understand that the number of ideas taken from the indicative content of the markscheme does not determine the mark awarded; it is the depth to which the ideas are developed. Consequently, candidates find it difficult to acquire more than 4 marks in part c questions if they go for breadth (long lists) rather than depth.

Depth of knowledge: It is not possible for all candidates to have a detailed knowledge of all topics that could be covered over the course. However, as much of ITGS is linked to the application of ideas across unseen scenarios, it is evident that candidates who had studied some topics in depth, such as the Da Vinci surgical system, were more likely to be able to apply that knowledge to a new (and unknown) situation.

There was evidence of a lack of planning for each response as many candidates provided responses that were confused, rambling or lacked structure. This may have been due to time restrictions.

The areas of the programme and examination in which candidates appeared well prepared

In the Standard Level paper and the common questions, most candidates answered the question based to the **Magic Medicine Cabinet (MMC)** and had a good understanding of the topic.

The question based on the **“Who has my data?”** scenario was also answered well by most candidate.

The question based on **“Donating and disposing old computers”** was also answered by well by many candidates. They seemed well prepared for this topic. The candidates demonstrated knowledge of peripheral devices, methods of backing up data and methods of removing information from hard disks before donating or disposing the computers, and in general they had a very good idea regarding impacts of donating and disposing of obsolete equipment.

For the Higher Level questions, the first part of Question 7, **Artificial Intelligence in the Classroom**, was in general answered well by most candidates.

A significant number of candidates was able to answer “Identify advantages and identify steps” questions suggesting a good technical knowledge.

Most candidates were able to identify relevant social and ethical issues throughout the exam paper, but were unable to develop these ideas further.

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

Standard Level questions only

SL 1

- (a) Most candidates did well on this question with the exception of those who suggested “number” as the data type for the Telephone_Number field.
- (b) Reasonably well answered. Candidates should be careful about the definition of “integrity” as an issue and how it differs from “reliability”. The main weakness with this question was failure to focus on the specified stakeholder (RAX).
- (c) Many candidates did not spot the change in focus from RAX to Myreceipt.com. Many answers made little reference to benefits for customers.

SL 5

- (a) A surprising number of candidates could not identify specific characteristics of social networking, presenting generic characteristics that could be applied to any on-line service.
- (b) This question was found challenging by many candidates. Few candidates had any secure grasp of the concept of “data mining” or how it differs from querying a database.
- (c) Generally adequately handled by most.

Common questions

SL 2 / HL 1: Magic Medicine Closet

- (a) (i) Some candidates identified “consequential” benefits of using the medicine cabinet and some discussed the benefits of using RFID tags.
- (ii) This was one of the questions where many candidates achieved full marks. However, it was difficult for some candidates to identify the steps involved in the face recognition process. Many did not relate the steps to the specified system, others left out the database that stored the image that the user’s facial image was compared with, and others missed out the step associated with the authentication of the facial image.
- (b) Many gave generic responses regarding online and face to face training i.e. they did not adapt to the context. The question asks about the blood pressure device which does require training. Many candidates thought the medicine cabinet required training. Many candidates thought they had to show how to use the blood pressure monitoring device instead of comparing the methods of training that could be employed to assist user’s in how to use the device.
- (c) Many candidates did not focus on using the MMC as a health care tool. It is important that candidates are guided in ensuring they read all parts of the question carefully.

SL 3 / HL 2: Who has my data?

- (a) (i) Candidates lost marks because they listed numbers, symbols, lowercase OR uppercase characters separately instead of as a combination. Some candidates mistakenly answered, “using a Captcha” to show that the user is not a machine or mentioned the use of a security question.
- (ii) Most candidates were able to provide one reason why passwords are set to expire on a regular basis, but not two.
- (b) Many candidates did not address security and therefore provided general comparisons between passwords and finger scans.
- (c) Candidates often did not clearly address “acceptable” and so gave advantage and disadvantages of holding the data without connecting them to how acceptable the practice is. Discussing how acceptable the practice is in the conclusion might help candidates write a conclusion that justifies their position on the question rather than simply repeating what has already been said. Some candidates made judgments about each advantage/disadvantage throughout the response. This helped them stay focused on the question i.e. the acceptability of the practice.

SL 4 / HL3: Donating or disposing of old computers

- (a) No major problems were observed. These questions were answered well by the majority of the candidates.
- (b) Some candidates did not set the answer clearly in the context of the school in Haiti. Many did not understand the difference between proprietary and open source software beyond the fact that open source is free or inexpensive. For example, they assumed that open source software was more prone to hacking when the opposite is much more likely because programmers are working on it continually.
- (c) Most candidates did not properly focus the question on the stakeholder. The stakeholder here is the company so the answer needs to focus on the impact of the decision on the company.

Higher Level questions only**HL 4: Disaster management strategies**

- (a) Most candidates did reasonably well here. At least 50% of the candidates demonstrated they understood the purpose of an UPS.
- (b) Many candidates did not understand what a feasibility study is. Of those that did understand what a feasibility study is, many were only able to identify considerations but not explain them.
- (c) Although it was not clear in the question whether the office in another city was connected to the main office via the internet. While it's unlikely that it wouldn't be connected, many candidates made that assumption. That said, either assumption was accepted, and most candidates were able to give reasonable, if generalized, answers.

HL 5: Waterfall versus agile

- (a) (i) Almost no candidates were able to gain any marks here. Information system is clearly defined on page 4 of the ITGS Guide. Candidates need to be able to distinguish an information system from information technology.

(ii) An apparently easy question, but it was not very well answered by a significant number of candidates.
- (b) (i) Candidates struggled with this. There was a general understanding that a Gantt chart provides a schedule but little beyond that.

- (ii) Surprisingly, candidates had some difficulty with this. They were only able to provide superficial distinctions between the waterfall method and the agile method.
- (c) Many candidates did address various stages of the SDLC but only in very general terms. They often realized that interviews and questionnaire and direct observation might be useful tools but were unable to develop the ideas with description and analysis. The great majority of the candidates did not understand the meaning of “involving various stakeholders during the different stages of the project system”.

HL 6: Malpractice victim’s family sues maker of faulty surgical robot

- (a) (i) Most candidates were able to provide at least two sensors used in robotic surgery.
 - (ii) Most candidates were able to identify at least two stakeholders that should be consulted. Many however mentioned patients as well and lost a point, because the word patient in this context is too broad.
- (b) Many candidates did not realize that the robot is not autonomous i.e. the doctor is in control. That said, they did address training issues, characteristics of the robot that might be advantageous or problematic.
- (c) This question focused on an ethical issue i.e. the extent of responsibility when things go wrong. Candidates were generally able to list factors that contributed to the responsibility of the surgeon/manufacturer, but had difficulty developing an ethical argument from those factors. Some candidates realized that in some situations neither the doctor nor the manufacturer is responsible or that both might be responsible.

HL 7: Artificial intelligence in the classroom

- (a) (i) Candidates were usually able to achieve the two marks in this question.
 - (ii) This question was ambiguous as the stem does not mention an expert system, but the markscheme was expanded to accommodate any potential differences in the interpretation of the question. Some candidates addressed an expert system but with minimal understanding. Others assumed the robot was controlled by the teacher in the Philippines and did somewhat better.
- (b) Some candidates suggested more knowledge but beyond that the notion of “effective teacher” was appeared difficult to deal with.
- (c) Mostly a listing of advantage and disadvantages. At this point, it appeared that many candidates were running out of time.

Recommendations for the teaching of future candidates

- Plan for the answer, divide the answer into paragraphs, underline command and key terms and re-use the in the question, use IT/ITGS terminology. Avoid listing ideas; analyze and develop them instead and back them up with examples.
- Use ITGS past papers more frequently, so that candidates get familiar with the style of questions.
- Be aware that the indicative content in the markscheme only provides suggestions for direction where an extended response may go. They are the starting point for an in-depth analysis and not a series of ideas that have to be ticked. The markband provides the mechanism to assess the depth of the response not the indicative content in the markscheme.
- Insist on teaching and discussing the meaning of the command terms so that candidates know exactly what is expected of them in the examination.
- Practice in class extended response questions, so that candidates get used to planning and developing responses.
- Discuss with candidates the need to avoid rewriting the question or quoting material from the stem verbatim in the response with no further development or analysis. The candidates must use and develop that information to support their responses to the explicit question that has been asked.
- Responses to questions, particularly part (b) and part (c) questions, must be written in the context of the scenario of the question and use relevant examples from that scenario. Reproducing generic responses that have no explicit reference to the scenario will inevitably limit the marks that can be awarded.
- Candidates must read the questions carefully. Where a stakeholder has been specified, that stakeholder should be the focus of the answer. While other stakeholders may be brought into the response where appropriate, the marks will be given for the treatment of how issues affecting those other stakeholders impact the specified stakeholder(s).

Higher and standard level paper two

Component grade boundaries

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 2	3 - 5	6 - 8	9 - 11	12 - 15	16 - 18	19 - 26

General comments

The article on using BYOD mobile technologies and the school WiFi network was short but contained sufficient material about the implementation of BOYD devices in schools and the potential concerns to enable the candidates to get started on their responses. Given the familiarity of the scenario it would be expected that the quality of the responses would increase. Overall there was an improvement in the middle and lower end but the number of candidates obtaining the higher grades did not improve.

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

It was apparent from the responses that many candidates did not know enough about the information technology involved with linking BYOD devices into the school network. In particular there seemed to be confusion about the use of IP addresses in the network, network ID's, MAC addresses and the role of wireless access points and routers. Also there seemed to be a lack of understanding of how 'syncing' of devices and their files could happen, and the use of firewalls and security software.

It was disappointing to see that many candidates did not attempt to provide conclusions to Criterion C and Criterion D. Furthermore the conclusions that were provided were often a summary of the impacts in Criterion C and the positive and negative evaluations of the solution in Criterion D. In Criterion C the conclusion needs to be a justified comment coming down on one side or the other concerning the overall effect of the impacts in Criterion C; specifically overall positive or overall negative partially balanced by significant impacts in the other direction. For Criterion D an overall evaluation of the effectiveness of the solution being a good solution or not is required, comparing the positive and negative implications.

The areas of the programme and examination in which candidates appeared well prepared

It was pleasing to see that more candidates knew how to structure their responses, especially for Criterion C and Criterion D. This was reflected in less candidates being awarded the lower grades. However the use of a standardised "template" structure did not lead to an increase in the display of higher order thinking skills needed for the higher marks in Criterion C and Criterion D. Further advice is provided later.

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

Criterion A (Question 1)

Part A

Candidates still need to describe more fully the reason why the concern is a problem. There is one mark allotted to the identification of the social/ethical issue, and one for a development (description) of it. For example, candidates identifying that the concern is about privacy also need to describe some of the details why the access to private data will cause a problem. The fact that someone has access to private data may not lead to an impact on the individual.

Part B

Most candidates answered this question well – specifying who the stakeholder was, the part of the IT system they were using or associated with (this requires the use of specific IT terms), and what they were doing with it.

Criterion B (Question 2)

Part A

For this question candidates were required to describe step-by-step how the IT system works and were required to include the registering of the device with the network, using it to access the network AND how it would be used in the school. Too many candidates did not include the last part, and provided a response that could be about linking the BYOD device to any network. Also the steps needed to include IT material that was not included in the article such as those listed above, and this was not done well enough.

Part B

Candidates needed to explain the link between two items, how the concern could come about and why it could happen due to a weakness in the IT system and its use. The lack of IT knowledge mentioned earlier was also apparent here as the IT weakness was identified but often details were not provided; e.g. malware could move from the BYOD device to the school network was identified but the reason why this could happen was not explained.

Criterion C (Question 3)

It was clear that most candidates knew that a structure was required for the response and provided one based on the various stakeholders or the various issues. The most successful were those based on the stakeholders as it enabled them to provide a balanced set of positive and negative impacts which is required for the higher marks.

As well as providing a structured response the better candidates were able to point out links between the impacts for a stakeholder and also between the impacts on various stakeholders. As has been pointed out in previous subject reports they were able to point out implications of the impacts in terms of size, the future, possible other effects, impacts on other stakeholder,

duration, extent, etc.

Criterion D (Question 4)

Most candidates were able to identify a solution to one of the problems found in the previous question, but again there was not a detailed description presented of the solution, especially technical details or details of actual policies. The best way to provide the link is to apply the solution to the specific stakeholder and his/her problem. Also to evaluate this solution candidates need to provide a balanced set of at least two positive and two negative evaluations of the effectiveness of the solution in solving the problem, and a conclusion that argued that the solution overall was effective, or not effective, in solving the problem.

In this session there were fewer candidates proving more than one solution. In this case, only the first solution is marked.

Recommendations and guidance for the teaching of future candidates

- For Criterion B, and also for Criterion A and Criterion C, candidates need to be instructed to include technical terms that demonstrate they have significant IT knowledge. The simple rule is to include technical IT terms beyond those used in the article.
- For Criterion C and Criterion D many candidates had been well prepared to use a structure for presenting the impacts. This was done either by using a structure based on the various issues studied in the course for the various stakeholders; or by structuring the responses by the various stakeholders and then the various positive and negative impacts for each. However for Criterion C this often lead to a list of impacts and not enough analysis and evaluation of them.
- For the next examination session candidates need to be instructed to include their own analysis and evaluation of the impacts, and how to develop justified conclusions. Specifically they need to make connections and comparisons between the impacts in their lists using the following words: *furthermore, additionally, however, but, conversely, likewise, in addition, on the other hand*. But be aware that these terms need to make a connection and not just be an introduction to another impact in the list.
- Lastly, the length of the paper does not seem to be a problem but there is little evidence of candidates going back to Criterion A and Criterion B and revising their responses. Considering the significant number of incomplete responses for these criteria the candidates need to review them. Candidates should use the first 15 minutes of the examination to plan their response. This is written in the question paper and the ITGS Guide, additionally the allocation of 75 minutes instead of 60 minutes for this paper during the Curriculum Review was based on this premise.

Higher level paper three

Component grade boundaries

Grade:	1	2	3	4	5	6	7
Mark range:	0 - 4	5 - 8	9 - 13	14 - 16	17 - 20	21 - 23	24 - 30

The levels of knowledge, understanding and skill demonstrated

Candidates seemed to understand the case study well, and virtually all candidates were able to show a reasonable level of knowledge along with some research. However in many cases the long responses seemed to have been adapted from “model” or “template” answers, which had been previously studied in class. This was clear in instances when candidates from the same centres were marked and their answers were virtually identical with a slightly different introduction and conclusion. Few of these answers directly addressed the questions in the November 2014 paper and therefore, good as they were, limited the amount of marks that examiners were able to award. Of course, there were some exceptions and those candidates gave excellent and original responses, which obtained the top marks.

Research was present in almost all cases. Sometimes this research was relevant to the questions and in other cases less so, but it was usually present. Candidates sometimes gave unverifiable, unsubstantiated or vague references which could not be awarded marks, such as “One company that I heard of makes software that does”. It was also noted that few candidates this session had interviewed professionals in the business, whether directly or by electronic means. When they had interviewed an expert, and when it was relevant to the question, those answers were suitably rewarded.

In summary, there was evidence of reasonable knowledge and some research techniques demonstrated, but what was missing in a lot of cases was sufficient skill to use that knowledge and research in an original and direct answer to the question. It is expected that higher level candidates should be able to demonstrate critical thinking skills.

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

As in other sessions, candidates who were less confident / able tended to resort to the formula of talking about the advantages, the disadvantages and then concluding, without paying attention to the command term in the question. Therefore the ability to write essays directly related to the command term required by the question is an area which still seems difficult, especially for that section of candidates who fall slightly below the average mark.

Technical knowledge combined with social and ethical arguments was also a rare occurrence. Many candidates provided good analyses of the ethics and some (fewer) perfectly described the underlying information systems / technologies, but it was difficult to find an answer that did both.

As in previous years, many of the responses would have benefited from taking a short time to plan the response before beginning.

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

Question 1

(a) The vast majority of candidates were very successful with this question.

In a few cases the candidate repeated the same advantage but worded it slightly differently for the second point and therefore lost a potential mark.

(b) Most candidates got at least 1 mark in this question.

However, many candidates gave at least one disadvantage from the point of view of the wrong stakeholder (ie. They said that not being able to copy a book is a disadvantage, when actually that is the purpose of DRM)

Question 2

A fewer than expected amount of candidates got excellent marks on this question because they did not properly explain 3 different technical methods. In some cases the candidate would allocate most of the page to explaining one and a few sentences to explain the other 2 (the question clearly asks for 3 methods and therefore it can be inferred that they are worth equal marks).

Question 3

This was probably the weakest question. Candidates tended to focus on why DRM is good or what it was more than how to enforce it. Also the issues with enforcing it were not really discussed. Very few scored well here as they only focused on what it was not how to deal with it or how it would not be effective.

Question 4

There was some focus on what self publishing was and why ebooks are the way to go for the future of publishing. However the research used to back up arguments on this topic was sometimes vague and contradictory or included what appeared to be random statistics.

Many candidates failed to achieve the highest marks as their analysis wasn't strong enough and in many cases unbalanced. There was definitely no "right" answer, but many candidates stated from the beginning that it was an obvious choice and presented only negative outcomes for the other alternative that they didn't choose.

Recommendations and guidance for the teaching of future candidates

- **Command Terms** – There needs to be a time spent during the course on how to interpret and understand the requirements of the specific command terms. Candidates are missing out on valuable marks as they are not reaching the level for which the command term requires. The OCC has a number of examples and resources on this topic.
- **Balance** – Very rarely will a candidate be asked to make a decision between 2 alternative approaches when there is an obvious and clear-cut “correct” answer. Therefore candidates are expected to give an opinion only after identifying and judging the merits of each alternative, from the viewpoints of more than one stakeholder. Many candidates gave an “unbalanced” answer that did not show an understanding of the complexity and merits of both possibilities. In cases such as this it is often impossible to decide with the information given, and that IS a valid conclusion.
- **Evaluations** – For the higher order thinking questions that require evaluation, candidates need to see examples as well as practice developing these extended responses within a classroom environment.
- **Extended Responses** – Candidates need to practice, under time constraints, an extended response to ensure that they know how to develop a balanced and evaluated response.
- **Pre-prepared answers** should be avoided as many candidates simply repeated these verbatim in the exam, sometimes missing the point of the question completely because their response had been “triggered” by a keyword in the question.
- **Planning Questions** – Candidates should take some time, particularly for Question 4, to plan out their points. Candidate will need to be shown this as well as practice it.
- **Independent Research** - Provide candidates with many opportunities to gather independent research for the higher order questions. Educate candidates on how to gather research and then incorporate it into their responses.
- **Mark Bands** - Understand the mark bands for Question 3 and Question 4 to know how marks are allocated. For example, research is necessary at the top bands and candidates should refer more to the question and case study throughout their answer.
- Candidates should understand how to interpret the requirements of the question by breaking down the stem of the question. This will avoid candidates going ‘off course’. Also practice re-reading the question to validate if the response corresponds to the question asked.

- A concise and lucid response is appreciated, as is neat handwriting. Due to the limitations of the eMarking system, some responses were very difficult to read. Practise by writing an answer under pressure, then scanning it in or photographing it and looking at it on a screen at 50% magnification. If it is easily readable then that is a clear enough response. If not, try to write larger and clearer.
- Likewise, candidates who fill the answer book with long introductions about “How IT is becoming more important every day..” usually receive no marks until they begin to actually answer the question (sometimes on the second page).