

Candidates' Performance

Paper 1A

This section consisted of 40 multiple-choice questions. Candidates' performance was generally satisfactory with an average of 23 questions answered correctly. Comparatively, they performed better in 'Social Implications' but worse in 'Internet and its Applications.' Post-examination item analysis revealed the following:

1. Candidates well understood the concepts of Object Linking and Embedding and its applications (Question 5). However, a high proportion of the candidates did not have a thorough knowledge of the application of hyperlinks (Question 12 and Question 13). They did not know that hyperlinks can be used in many computer applications like document and presentation files, other than browsers. About a quarter of the candidates wrongly asserted that the page numbers of a document must start from 1. Less than half of the candidates were able to show their practical experience in using 'what-if' analysis in a spreadsheet (Question 16).
2. Candidates generally performed well in 'Computer System Fundamentals.' They were able to evaluate the computer upgrade items with different constraints (Question 23). About half of the candidates demonstrated elementary knowledge of the fetch-decode-execute cycle (Question 22).
3. Only about a quarter of the candidates were able to distinguish the difference between HTML format and plain text (Question 26). About half of them thought that the HTML format was used because browsers could open the email. In fact, browsers could open email in either format. About one third of the candidates understood the use of HDMI while another one third wrongly thought that HDMI and VGA could be used together (Question 28). Candidates performed poorly in the application of network device and only a small number of them identified the functions of a switch (Question 29).
4. Candidates were able to apply basic analytical skills to trace some familiar algorithms (Question 30 and Question 31). Only a small number of the candidates were able to apply thorough analytical skills to evaluate the unfamiliar, complex algorithm and about half of the other candidates had a wrong assumption that the execution time of a program was inversely proportional to the number of program statements (Question 32). About a third of the candidates knew the application of an array, illustrating that the majority could not demonstrate adequate practical experience in programming (Question 33).
5. Candidates generally performed very well in 'Social Implications' and demonstrated a comprehensive knowledge and understanding of ergonomic practices when analysing the unfamiliar issue (Question 39). Though social networking applications are very popular in Hong Kong, nearly a third of the candidates wrongly thought that when browsing social networking web sites, using default privacy settings to restrict access could reduce the related threats (Question 37).

Paper 1B

- This paper assessed candidates' understanding of 'Information Processing', 'Computer System Fundamentals', 'Internet and its Applications', 'Basic Programming Concepts' and 'Social Implications', and the application of ICT knowledge in real life.
- Candidates' performance was generally satisfactory.

Question Number	Performance in General
1 (a) (i)	Fair: About half of the candidates explained the advantage and disadvantage of having the printer at Q instead of at P which was not the requirement of the question.
(ii)	Good: About a quarter of the candidates stated that driver/BIOS would be stored in ROM. They showed limited understanding of the functions of ROM in the printer as well as driver to be used in computer.
(b) (i)	Good.
(ii)	Poor: A high proportion of the candidates wrongly wrote digital and analog signals as a functional difference between the two cables. Their understanding of signal transfer through a cable was poor.
(c)	Good.
(d)	Good.
2 (a)	Good.
(b)	Good: A small number of the candidates just gave a general statement such as adding to the contact list or address list without mentioning the key concept of 'trust'.
(c)	Good.
(d) (i)	Fair: About half of the candidates stated that the use of bar codes was not supported by smart phones. They showed a limited experience in using bar codes and QR codes.
(ii)	Fair: About a quarter of the candidates just stated 'convenient' as the benefit without further elaboration.
(iii)	Satisfactory: A small number of the candidates stated that QR code can link to a certain website. They were not aware the question asked for another kind of use other than 'linking'.
3 (a)	Good.
(b)	Satisfactory: a small number of the candidates stated that downloading files using Bit Torrent (BT) was faster. They were not aware that the BT was actually a protocol supporting peer-to-peer file sharing which itself was affected by the number of hosts. They showed a limited understanding of the application.
(c)	Good.
(d)	Satisfactory: A small number of the candidates stated that the 110,000 characters included 'other codes' without further elaboration.
(e)	Good.
(f)	Good.

Question Number	Performance in General
4 (a) (i)	Good.
(ii)	Fair: A high proportion of the candidates just named generally the types of validation check, such as type check and format check without making reference to the data given in the question.
(b)	Good. Candidates were able to trace and interpret the simple SQL statement.
(c)	Poor. Candidates were weak in the application of absolute address and relative address.
(d)	Satisfactory.
(e)	Fair.
5 (a)	Satisfactory: The majority of the candidates understood the requirement of initialisation, use of counters and summation.
(b) (i)	Good.
(ii)	Poor: Some candidates explained that the number started with the value 2, which was still less than 10. Hence the algorithm was still correct. This was a fact but not a proper explanation to support changing the initial number to 2.
(c)	Fair: Candidates stated (ALG1 - ALG2) as the answer to be assigned to PAYMENT. They were not aware that both ALG1 and ALG2 themselves were subprograms without parameter passing. They showed a limited understanding of subprograms.
(d)	Fair: In explaining batch processing systems, candidates wrote that the department needed time to collect data of the 20 members so as to provide the sales promotion. This was not the reason as a real-time system could also do the same task. Candidates should clearly give the idea of monthly process or process completed within a period of time to get the full mark.

Paper 2A

1. This paper assessed candidates' understanding of 'Basic Concepts of Databases', 'Relational databases', 'Basic Concepts of Database Design Methodology' and 'Database Applications, Development and Society', and the application of ICT knowledge in real life.
2. Candidates' performance was generally satisfactory.

Question Number	Performance in General
1 (a)	Very good: Almost all candidates correctly gave the required field name in the SELECT clause. About half of them were able to use DESC in the ORDER BY clause correctly.
(b)	Satisfactory: About half of the candidates understood how to handle the BOOLEAN data type and string manipulation in the WHERE clause.
(c)	Satisfactory: About half of the candidates applied the aggregate function appropriately.
(d)	Fair: Candidates demonstrated different levels of understanding of SQL when answering a command with a HAVING clause. A small number of them were not aware that YEAR() would return an integer value.
(e)	Poor: A small number of the candidates clearly understood the concepts of outer join and wrote the SQL statements about outer join. Only a very small number of the candidates answered MINUS or EXCEPT in Part (iii).
2 (a)	Fair: A high proportion of the candidates identified the fields in the table EMPLOYEE, but only a small number of them wrote all primary and foreign keys precisely.
(b)	Poor: Candidates were very weak in determining a candidate key. They were not able to make a judgment with the database concept.
(c)	Satisfactory: Candidates demonstrated understanding of different access rights and measures but they failed to realise the proper usage of 'view'.
(d)	Satisfactory: The majority of the candidates provided a reasonable approach with proper restrictions but they were not able to specifically point out the integrity problem with appropriate database terms.
3 (a)	Fair.
(b)	Excellent: Almost all candidates correctly wrote the INSERT command. However, a small number of them casually used the quotation marks with different data types, which was not appropriate.
(c)	Satisfactory: A high proportion of the candidates gave the potential advantage of the suggestion but they did not give a strong argument about the potential disadvantage.
(d)	Fair: Candidates were weak in giving clear description on the importance of documentation and only a small number of them understood the purpose of documentation.
4 (a)	Good: A high proportion of the candidates correctly identified the job title.
(b)	Good: The majority of the candidates understood the fundamental concepts of E-R diagrams. They correctly used the basic E-R diagram convention and symbols.
(c)	Satisfactory.
(d)	Satisfactory: Candidates were not aware that the potential problem stated in the question was about data privacy.
(e)	Satisfactory: The majority of the candidates wrote a proper subquery.
(f)	Fair: About a third of the candidates understood the basic concept of data mining but they had difficulty in further elaborating the example with details.

Paper 2B

1. This paper assessed candidates' understanding of 'Data Communications and Networking Basic', 'Network Design and Implementation' and 'Network Management and Security', and the application of ICT knowledge in real life.
2. Candidates' performance was generally satisfactory.

Question Number	Performance in General
1 (a)	Very good: A very high proportion of candidates understood the concept of 'Port'.
(b)	Poor: About half of the candidates were able to point out the security measures of VPN while only a very small number of candidates gave a brief explanation of the use of DHCP.
(c)	Very good.
(d)	Poor: Only a very small number of the candidates gave the advantage of using automatic channel selection.
(e)	Very good: A very high proportion of candidates were able to give different advantages of wired connection.
2 (a)	Very good: Candidates demonstrated an understanding of the basic concept of analog and digital data.
(b)	Poor: About half of the candidates demonstrated adequate understanding of synchronous transmission.
(c)	Good.
(d)	Poor: Only about one third of the candidates justified their answers.
3 (a)	Very good: Nearly all candidates were able to specify the network tests according to the given objectives. A small number of candidates gave considerations from the view of the visitors but not that of the museum.
(b)	Good.
(c)	Fair.
(d)	Fair: About half of the candidates were able to mention the communication between Y and the APs.
4 (a)	Good: Candidates demonstrated a sound understanding of the characteristics of WiFi networks.
(b)	Good.
(c)	Poor: About one third of the candidates demonstrated an adequate understanding of circuit switching and packet switching.
(d)	Excellent: Candidates were familiar with the basic concepts of Cloud storage.
(e)	Very poor: Only a very small number of the candidates were able to give the characteristics of a PAN.

Paper 2C

1. This paper assessed candidates' understanding of 'Multimedia Production' and 'Web Site Development', and the application of ICT knowledge in real life.
2. Candidates' performance was generally satisfactory.

Question Number	Performance in General
1 (a)	Satisfactory: Candidates generally gave one of the two advantages.
(b)	Very good: A very high proportion of the candidates were able to explain clearly the advantage and disadvantage in terms of the specifications of AVI file format.
(c)	Good: The candidates had a sound knowledge of video streaming. A high proportion of the candidates were able to suggest and explain clearly the causes of the problem.
(d)	Good: A high proportion of the candidates were able to successfully estimate the bit rate. However, a few of them did not show their calculation.
(e)	Satisfactory: About a quarter of the candidates were able to describe clearly the meaning of 'Progressive' and 'Interlaced'. A small number of the candidates gave the answer 'number of lines' but did not refer to 'number of lines scanned per second'.
2 (a)	Very good: A very high proportion of the candidates were able to identify the properties of the compression of different file formats.
(b)	Fair: Candidates did not understand well that different browsers may interpret some HTML codes differently. Only a small number of the candidates were able to give the use of images/Cascading Style Sheet (CSS) to keep the layout of the web pages the same for the common browsers.
(c)	Poor: Nearly all the candidates were unfamiliar with the functions and usage of metadata included in a web page.
(d)	Very good.
(e)	Fair: Candidates mixed up the attributes of a photo with the attribute/features of the function producing video from a number of photos.
3 (a)	Satisfactory: A high proportion of the candidates explained clearly why captcha should be shown as an image, but they were weak in describing another design for the blind people. However they were good at explaining why alternative text should be added to every captcha image
(b)	Poor: Only a small number of the candidates were able to describe how server-side and client-side scripting can help to validate data in an interactive web page.
(c)	Good: A high proportion of the candidates were able to give drawbacks of the design. However a small number of them did not suggest effective solutions corresponding to the drawbacks they suggested.
(d)	Fair: A small number of the candidates were able to explain clearly and precisely what the sampling rate/sample size is. Candidates used some vague terms such as 'better quality' and 'good sound' to support the use of stereo recording without further explanation.
(e)	Poor: Only a very small number of the candidates were aware of the attributes that should be considered in sound mixing.

Question Number	Performance in General
4 (a)	Satisfactory: The majority of the candidates clearly understood check box and multi-select box. However, they were not able to apply this knowledge to describe scenarios in which the two designs should be used. A high proportion of the candidates were able to answer correctly that a dialog box is used for confirming information.
(b)	Satisfactory: The majority of the candidates had clear a concept of a 'deselect/reset' button. However, they were not able to fully describe how the client-side script can help to count the number of selected activities.
(c)	Poor: Only a small number of the candidates successfully checked the conditions for the swapping and skillfully handled the swapping of the arrays.

Paper 2D

1. This paper assessed candidates' understanding of 'Programming', 'Programming languages' and 'Systems Development', and the application of ICT knowledge in real life.
2. Candidates' performance was generally satisfactory.

Question Number	Performance in General
1 (a)	Good: A high proportion of the candidates traced the algorithm correctly. However, only a small number were able to give the correct answer in (iii).
(b)	Satisfactory: A high proportion of the candidates traced the algorithm correctly. However, only a small number were able to simplify the steps in (iii).
2 (a)	Good: A high proportion of the candidates demonstrated a sound understanding of the difference between compiler and interpreter.
(b)	Good: A high proportion of the candidates completed the flowchart correctly.
(c)	Satisfactory: A high proportion of the candidates correctly traced the algorithm and demonstrated an adequate understanding of the operation of stack.
(d)	Satisfactory: Candidates demonstrated an adequate understanding of the data structure used in the algorithm. However, the majority of them failed to identify the capacity of the stack.
(e)	Poor: Only a small number of the candidates were able to state the difference between valid cases, invalid cases, and extreme/boundary cases and describe the three sets of cases from the general point of view precisely.
3 (a)	Good: A high proportion of the candidates demonstrated a sound understanding of Gantt charts and 'dependency'.
(b)	Poor: Candidates demonstrated a basic knowledge of the Waterfall Model. However, the majority of them failed to identify the phases that may lead to mistakes. In addition, they failed to state that the errors should be traced one by one from testing to requirement phases.
(c)	Satisfactory: Candidates demonstrated adequate understanding on data flow diagram. However, less than half of them completed the dataflow diagram in (ii) correctly.
(d)	Poor: Only a small number of the candidates wrote the correct function in (i) and identified the correct range of numbers in (ii) and (iii). Other candidates only gave a particular number in (ii) and (iii).
4 (a)	Good: A high proportion of the candidates demonstrated a sound understanding of the storage method.
(b)	Good: A high proportion of the candidates were able to identify the best case and the worst case. However, they failed to state the advantage of Method 1.
(c)	Satisfactory: Candidates demonstrated adequate understanding on the logic of the program. However, the majority of the candidates failed to explain that only the first element in P is required.
(d)	Satisfactory: Candidates demonstrated an adequate understanding of object-oriented languages and procedural languages. However, some candidates mistakenly answered on the difference between high level languages and low level languages.

School-based Assessment (SBA)

1. The SBA component consists of one project assignment. It is evaluated in accordance with the following categories:
 - Objective & Analysis
 - Design & Implementation
 - Practical ICT Skills
 - Testing & Evaluation
 - Conclusion & Discussion
 - Documentation
 - Creativity
 - Project Management

Two project titles were provided to teachers, who were allowed to provide other school-based project titles to suit their students' needs where necessary. A small number of schools provided additional project titles to their students.

2. The SBA marks submitted by schools were moderated in accordance with the principles and methods described in the booklet '*Moderation of School-based Assessment Scores in the HKDSE*'. The quantitative results in the SBA moderation reveal that 57.7% of schools fell into the 'within the expected range' category, while 21.8% of schools were higher than expected, and 20.5% were lower than expected. Of the schools with marks higher or lower than expected, the majority deviated only slightly from the expected range.
3. An SBA Supervisor and 25 District Coordinators were appointed to oversee and support the implementation of SBA. They worked with teachers through the SBA conferences, territory-wide sharing sessions, district group meetings and a teachers' online e-platform. The e-platform made it possible for teachers to download the 'Resource Package on Professional Development for Teachers in Preparation for the School-based Assessment Component of HKDSE Information and Communication Technology', which contains project samples and other teaching materials. They were also able to communicate with each other through online discussion forums, thus creating their own SBA support community.
4. Students' performance was generally satisfactory. A high proportion of the students were able to write a concise summary report corresponding to the scope they had defined and the prototypes they had produced. Students, in general, made use of the knowledge that they learnt from the compulsory part and the corresponding option of the elective part in the curriculum. However, students were weak in describing and justifying the uses of the suggested elements listed under the four different selected options. They failed to demonstrate their good practical ICT skills, which is crucial to the SBA.

In Project Title 1, students were not aware that the system should display up-to-date voting results from time to time and therefore did not provide an instant responding system. About a third of the students did not set up a database system to record voters' comments.

In Project Title 2, students were able to define clearly the needs of the clients. However, less than half of the students provided solutions to deliver services effectively through the information system of the medical health care network they designed. Students seldom made use of a database to record the entries of the services provided by the system.

5. Students should understand that for a fair assessment the acknowledgement of information and help from teachers and others should be clearly stated in the project report. Students should write in their own words when completing their SBA and should not simply copy words or ideas of others and present them as their own. In fact, they can quote or make references to something written by other authors in their work, as long as they ensure that these quotes or references are identified and the sources properly acknowledged. Students are advised not to quote excessively in their work, as this would imply a minimal contribution to their work and consequently would likely be awarded low marks from their teachers. Students should also provide a reference list at the end of their work of all the sources of information that they have referred to. This reference list can include the name of the author, year of publication, book title, place of publication, publisher and page number where the quotation or idea is found.
6. Students should complete the assessment tasks honestly and responsibly in accordance with the stipulated requirements. They will be subject to severe penalties for proven malpractice, such as plagiarizing others' work. The HKDSE Examination Regulations stipulate that a candidate may be liable to disqualification from part or the whole of the examination, or suffer a mark penalty for breaching the regulations.

Students can refer to the information leaflet HKDSE Examination - Information on School-based Assessment (http://www.hkeaa.edu.hk/DocLibrary/Media/Leaflets/SBA_pamphlet_E_web.pdf) for guidance on how to properly acknowledge sources of information quoted in their work.

General comments and recommendations

1. The popularity of the Elective Part is shown below.

Option	Popularity (%)
A. Databases	11
B. Data Communications and Networking	4
C. Multimedia Production and Web Site Development	70
D. Software Development	15

2. Candidates applied simple skills to describe practices in using ICT but were not able to apply their knowledge to solving unfamiliar problems adequately.
3. Some candidates were careless in reading questions and sometimes missed some points in their answers.
4. Occasionally candidates made spelling mistakes when writing keywords.
5. Candidates performed fairly on demonstrating some essential learning outcomes of the curriculum. They should read the Curriculum and Assessment Guide carefully and study the essential elements in all topics.