MAJLIS PEPERIKSAAN MALAYSIA
Malaysian Examinations Council

PELANGI

Laporan Peperiksaan STPM 2023

Information and Communications Technology (958)

Information and Communications Technology

958/1

OVERALL PERFORMANCE

The number of candidates for this subject was 645. The percentage of candidates who obtained a full pass was 52.25%.

The achievement of candidates according to grades is as follows:

Grade	A	A–	B+	B	B–	C+	C	C–	D+	D	F
Percentage	7.60	3.10	2.79	4.34	9.92	15.50	8.99	17.30	12.64	8.82	8.99

RESPONSES OF CANDIDATES

PAPER 958/1

General comments

Overall, the quality of the questions was good and aligned with the ICT syllabus. The questions met the recommended ratio of LOTS to HOTS (3:2:1), and the marks distribution was well-structured, allowing students to score when answering correctly. The language and terminology used in both the Malay and English versions were clear ensuring candidates would have no difficulty understanding them. Questions 1 and 4 assessed the technologies used by candidates. Q7 was preferred over Q6 in section B.

Most candidates provided answers in English, which were generally legible and followed the order of the questions. However, some candidates reused the preamble in their responses, particularly for Q2(*a*), and were penalised for this. Most opted to answer Q7, which was more technical. For those who attempted Q7, they either scored full marks or none, especially for parts Q7(*b*) and (*c*), as these involved technical drawings of ICT networks. This question highlighted students' strengths, provided they chose to answer it.

Notably, a strong answer to Q7 included a technical drawing of a network with a satellite as a source of wireless internet, multiple hosts (such as laptops, mobile phones, and tablets), and an integrated switch/modem—mimicking a modern ICT network setup.

Q3 posed a challenge for most candidates as in previous years. It required an explanation of abstract concepts related to the Principles of Design. Around 60% of the total candidates answered in English. Those who answered in English generally presented their answers well, using the correct terminology and spelling.

Candidates also struggled with Q1, which was intended to be an easier question. Those who failed to obtain full marks often lacked knowledge about the technology being asked.

Comments on the individual questions

Question 1

Part (*a*) – This was a straightforward question, asking candidates to provide an example of a web browser. Most candidates earned marks here, except for those who answered with "Google" instead of "Google Chrome."

Part (*b*) – This question was worth 2 marks. Candidates could earn at least 1 mark by stating that a web browser was used to search for information. However, many lose the second mark because they did not recognise that a web browser also functions as a "display" for the information retrieved.

Parts (*c*), (*d*) – These questions were about plug-ins, and in part (*d*), candidates were expected to name an example of a plug-in. Those who lose marks on these questions appeared to lack knowledge about plug-ins, as they provided answers related to computer peripherals, such as USB drives and printer cables, instead.

Question 2

Part (*a*) – This question was related to a cybercrime scenario. Candidates were expected to provide detailed explanations about the illegal act. However, many simply reused the preamble text in their answers without elaboration, and as a result, they were penalised.

Part (*b*) – This was a recall question about a specific cybercrime act. Candidates lose marks because they failed to recall the exact name and year.

Part (*c*) – This question was based on a scenario and focused on the impact of a cybercriminal action on Hendry's computer. Candidates who lose marks on this question appeared to have misread it, providing answers about the impact of the action on Hendry himself rather than his computer. Responses such as "Hendry will be jailed or fined" were incorrect, as they did not address the impact on his computer.

Part (*d*) – This was intended to be an easy question. However, similar to part (*c*), some candidates lose marks due to misinterpreting the question. They were expected to provide examples of software solutions to prevent the cybercriminal action, but instead, many gave examples of freeware that could be used by Hendry.

Question 3

There were three parts covering the Principles of Design: balance, proportion and movement. This question proved challenging for most candidates, as they struggled to explain these abstract concepts. For part (*a*), several candidates managed to score partial marks by recalling the concept of balance, particularly its asymmetrical and symmetrical types. However, most candidates failed to achieve even partial marks for parts (*b*) and (*c*), indicating a lack of understanding of these concepts as presented in the syllabus.

Question 4

This was an easy to moderate question structured in several steps regarding the types of user interfaces. Most candidates were able to answer part (*a*) about GUIs and part (*c*) concerning touch interfaces. However, several candidates who did not obtain marks in part (*b*) may have lacked knowledge of

NUI (Natural User Interface). Some of these candidates provided responses such as "the sky" and "the environment", indicating their lack of understanding. Additionally, in part (*c*), several candidates failed to mention the element of touch in their answers.

Question 5

This question was quite difficult as it required specific details about the processes involved in the candidates' coursework. In part (*a*), several candidates appeared to be confused between alpha testing and alpha development. Instead of stating the purpose of alpha development, they described alpha testing. In part (*b*), candidates were expected to outline specific tasks they would perform with a storyboard; however, many provided a complete list of tasks involved in the alpha development phase instead. In part (*c*), candidates lose marks for failing to explain that activities in prototype testing should include corroborating feedback from users.

Question 6

This was a challenging question that covered (*a*) ransomware and (*b*) CAPTCHA. Candidates who chose to answer this question tended to score higher in part (*b*) due to their familiarity with CAPTCHA.

In part (*a*), candidates lose marks primarily because they were unable to explain that ransomware involved the encryption of files. Instead, they provided explanations about drive-by download attacks, indicating a misunderstanding between malware and viruses.

For parts (*b*)(i) and (*b*)(ii), candidates demonstrated an understanding that CAPTCHA was used for login verification. However, they failed to mention that CAPTCHA was specifically designed to differentiate between humans and bots, which resulted in not obtaining full marks.

In part (*b*)(iii), many candidates who attempted Q6 did not earn any marks due to a lack of knowledge about the function of encryption in changing the form of data for privacy and protection. Instead, they provided answers related to another form of CAPTCHA involving images.

In all three parts, candidates tended to give generic and repetitive answers that were often irrelevant, leading to further loss of marks.

Question 7

This was a popular question that allowed candidates to either earn full marks or no marks at all in parts (*b*) and (*c*). Most candidates found part (*a*) easy to answer, as they could relate to their own knowledge of the advantages of Wi-Fi over wired connections.

For parts (*b*) and (*c*), candidates were expected to present a technical drawing of an ICT network setup. It was crucial for candidates to provide an entirely correct connection of all the elements; otherwise, the entire setup would be deemed incorrect and impossible. As a result, candidates could lose all marks for an incorrect setup. Many candidates overlooked the fact that a switch was a vital component connecting all hosts, mistakenly indicating a server instead. Similarly, in part (*c*), when a redraw was required to include the internet, several candidates failed to include a router to link the wired LAN from part (*b*) to the internet.

Information and Communications Technology
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OVERALL PERFORMANCE

The number of candidates for this subject was 602. The percentage of candidates who obtained a full pass was 59.97%.

The achievement of candidates according to grades is as follows:

Grade	A	A–	B+	B	B–	C+	C	C–	D+	D	F
Percentage	12.29	5.65	6.98	7.48	7.64	11.79	8.14	9.54	4.35	8.03	18.11

CANDIDATES' RESPONSES

PAPER 958/2

General comments

The questions were straightforward, well-structured, and easy to understand.

Overall, all the questions aligned with the STPM ICT syllabus and Bloom's Taxonomy, encompassing both lower order thinking skills (LOTS) and higher order thinking skills (HOTS).

Most candidates were able to provide partial answers to the questions. Common mistakes included syntax errors and an inability to trace code execution to derive the output generated by the code.

In Section A, Q1 and Q2 were relatively easy; however, a few candidates struggled to answer them correctly, suggesting a lack of sufficient knowledge. For Q3, Q4 and Q5, some candidates were unable to provide any answers at all, while the majority successfully wrote code segments in C programming that utilised loops.

In Section B, Q6 and Q7 presented a higher level of difficulty compared to Section A. Overall, Q7 was more popular than Q6, with only a few candidates unable to provide any valid answers; many candidates were able to give partial responses.

The difficulty level spanned from LOTS to HOTS questions.

Many candidates struggled to provide complete answers to every question, likely due to insufficient knowledge or practice with the C programming language. A small number of candidates were so weak that they could not answer most questions.

The range of marks obtained by candidates was quite broad. A few candidates failed to apply concepts effectively in their C programs, and several scripts contained numerous syntax errors. Some of candidates could not answer the questions correctly; however, many demonstrated some understanding of the topics. Additionally, there were very few candidates who did not attempt to answer any questions at all.

Comments on the individual questions

Question 1

Most candidates attempted this question, but only a few provided precise answers. Many submitted function prototypes with missing statements or syntax errors, indicating a lack of understanding of function declaration in C. This suggests gaps in their knowledge of proper syntax and structure, reflecting insufficient practice with coding and confusion about parameters and return types.

Question 2

Many candidates were able to answer this question successfully. However, only a few struggled to write their responses based on the provided declaration statements in C. Additionally, some candidates lacked the knowledge necessary to effectively use Boolean operators when solving the given expression. This gap in understanding may have prevented them from reaching the correct solution.

Question 3

Many candidates attempted to answer this question, as the problem was relatively straightforward. However, some struggled with the struct type aspect due to a lack of skill and understanding of the topic. Additionally, several candidates were unable to correctly apply the basic syntax for using loop statements, which affected their ability to formulate accurate responses.

Question 4

In part (*a*), many candidates successfully wrote the algorithm using pseudocode, demonstrating their understanding of how to properly begin and end a pseudocode structure. However, in part (*b*), only a few candidates were unable to construct a code segment in C that involved loops. The question provided a clear formula for calculating square and cube values by multiplying "n" by 2 and 3, respectively, which should have guided their solutions.

Question 5

The question was relatively straightforward; however, some candidates struggled to answer it correctly. Many had difficulty clearly expressing their ideas for generating a triangular shape based on the input number, which needed to fall within the range of 1 to 9, especially when using nested loop structures. In contrast, most candidates demonstrated a solid understanding of the `if...else` statement in part (*b*), effectively using the condition to check whether the input number was valid.

Question 6

Part (*a*) – Many candidates successfully wrote the declaration statements in C for all the variables based on the given formula. They were also able to convert the algebraic expression into the equivalent statement in C and correctly determine the surface area of a right rectangular pyramid.

Part (*b*) – The question required candidates to write both a function prototype and a function definition. The difficulty level was average and most students were able to answer the question correctly in C using functions. However, a few candidates failed to provide the correct prototype and complete definition

for the function. While most demonstrated an understanding of the proper structure, some had missing statements or syntax errors. This indicated that some candidates grasped what was expected but overlooked important syntax or logical aspects of the programming code. A small number of candidates also struggled to understand the concept of functions clearly.

Question 7

Many candidates successfully drew the flowchart, demonstrated an understanding of the problems, used the correct control structures and wrote the appropriate C programs for the tasks. However, a few candidates performed poorly in the flowchart design and did not receive full marks because they provided incorrect logic and encountered syntax errors while writing the code segments in C.

Information and Communications Technology
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OVERALL PERFORMANCE

The number of candidates for this subject was 593. The percentage of candidates who obtained a full pass was 54.30%.

The achievement of candidates according to grades is as follows:

Grade	A	A–	B+	B	B–	C+	C	C–	D+	D	F
Percentage	14.50	2.02	5.56	2.87	8.94	10.46	9.95	12.65	11.13	9.27	12.65

CANDIDATES' RESPONSES

PAPER 958/3

General comments

All questions were relevant and aligned with the STPM ICT syllabus, covering all major topics in Information Systems (IS). Most questions related to IS application theory required candidates to employ cognitive thinking skills that were appropriate for their level of study. The scope of the questions falls within the ICT 958/3 syllabus, assessing students' knowledge of the steps, activities and advantages of database management systems. The level of difficulty was suitable for the time frame given and all instructions were clear.

While the questions were well-designed and correspond to the topics covered in the ICT syllabus, many candidates faced difficulties in answering Q5(*b*), which required them to provide explanations based on a given example.

The overall level of difficulty was medium. Questions in Section A primarily assess the "understanding" level of Bloom's taxonomy, with only Q7 in Section B being particularly challenging. The paper was structured to include low, medium, and higher order thinking questions, with most questions set at a medium difficulty level. They assess knowledge, understanding, analysis, and synthesis. Q1, Q2 and Q3 were designed to test knowledge at a lower difficulty level, while Q4 and Q5 were moderate. Q6 and Q7 were more difficult, requiring evaluative knowledge to assess analysis and synthesis skills.

Most candidates' answers did not meet the requirements of the questions. Their responses indicated a lack of true understanding of the topics, resulting in incorrect or incomplete answers as per the marking scheme. Many candidates provided only surface-level explanations, allowing them to earn only a few marks. They struggled particularly with questions requiring deeper explanations or definitions and showed poor comprehension of the situations involved in each phase of system development.

Comments on the individual questions

Question 1

Part (*a*) – Candidates were tested on their knowledge of system analysis and design, specifically on the purpose of these processes. Many candidates were able to provide correct answers.

Part (*b*) – However, most candidates did not fully understand the use of methodologies in system analysis and design, which led to many failing to compare the Rapid Application Development (RAD) model with the Waterfall model effectively.

Overall, the quality of answers provided by candidates was below expectations, as many struggled to construct clear and coherent sentences for each response. Most answers were overly general and lacked depth.

The level of difficulty for this question was set at low, so it was expected that candidates would achieve full marks.

Question 2

Most candidates were able to provide examples of activities in the implementation phase. However, only a few candidates managed to obtain full marks. A small number of candidates struggled with language, making it difficult for them to find the right words to describe the activities.

The level of difficulty for this question was low, so candidates were expected to achieve full marks. Examples of minimum acceptable answers include "understanding business requirements" and "identifying inefficiencies in existing processes".

Question 3

Most candidates were able to explain the concepts of candidate keys and primary keys. However, many struggled with describing foreign keys, weak entities and multivalued attributes. Some candidates were also unable to differentiate between multivalued attributes and composite multivalued attributes.

This question was designed to test the basic knowledge of entity relationship diagrams and their usage. The level of difficulty was low, so candidates were expected to achieve full marks.

Question 4

Part (*a*) – Most answers provided by candidates were too general and many failed to obtain full marks. Their responses were mostly based on general knowledge and they struggled to connect the theoretical concepts with the applied scenario in the diagram. This suggests that many candidates lack critical thinking skills.

Part (*b*) – Most candidates were unable to construct proper sentences to explain the advantages of using a DBMS over a file processing system.

This question required candidates to apply theoretical concepts to a practical scenario, demanding critical thinking. The level of difficulty was moderate, and candidates were expected to provide basic answers such as, "Data redundancy may occur in customer data files when similar records are repeated," or "Data inconsistency may arise when different versions of the same customer record exist in multiple places, leading to conflicting information."

Question 5

Most candidates were unable to differentiate between data redundancy and data inconsistency, resulting in their inability to explain these terms using the provided table.

This question required candidates to apply theoretical concepts to a practical scenario, demonstrating critical thinking. The level of difficulty was moderate and candidates were expected to provide basic answers. For example, "Data redundancy occurs in the table when there is repetition of similar records such as `ROAD_NAME`, `EMP_NO`, `EMP_NAME` and `EMP_JOB_CODE`." Similarly, "Data inconsistency may arise when different versions of the same record appear in multiple locations and are updated in some places but not others such as changing `EMP_JOB_CODE` from `EE` to `EA` which created conflicting information."

Question 6

Most candidates did not choose to answer this question. However, those who did were generally unable to correctly describe the dependencies within the relationships. They also struggled to demonstrate the steps required to normalise data from 1NF to 3NF and failed to correctly identify the primary key for each relation.

This question required candidates to apply theoretical concepts to a practical scenario, demanding critical thinking. The level of difficulty was high and candidates were expected to identify the dependencies in the provided report. Failure to do so resulted in an inability to perform the necessary steps for normalisation from 1NF to 3NF. A strong understanding of full, partial and transitive dependencies was needed to answer this question correctly.

Question 7

Part (*a*) – Most candidates were able to write a correct SQL command to list data with two conditions.

Part (*b*) – However, many struggled with the correct syntax for the `UPDATE` command, frequently using incorrect formats for temperature, such as `temperature = 33°C`, `temperature = "33"` or `temperature = "33°C"`.

Part (*c*) – Only a few candidates wrote the correct command using `MAX` and `MIN` leading many to lose marks.

Part (*d*) – Most candidates could not correctly use the AVG function to query average rainfall.

Part (*e*) – Additionally, many provided incorrect syntax for the DELETE command, such as `DELETE * FROM Station` and incorrect temperature formats like `temperature > "40°C"`.

This question required candidates to apply critical and analytical thinking to connect theoretical concepts with practical scenarios. The difficulty level was high and it was expected that candidates would possess fundamental knowledge of data manipulation language (DML) and apply the correct syntax for all DML commands: `SELECT`, `DELETE`, `UPDATE` and `INSERT`.

Laporan Peperiksaan

STPM 2023

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