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PREFACE

IN THE NAME OF ALLAH, MOST GRACIOUS AND MOST MERCIFUL.

The present volume has been meticulously compiled to support students preparing for Paper 1 under the updated Cambridge O Level and IGCSE syllabus for the examination years **2025-2027**. With the rapidly evolving academic landscape, it has become essential for learners to access structured, authentic, and comprehensive resources that align accurately with the expectations of the modern Cambridge assessment framework. This book has been developed to fulfil that academic need with precision and reliability.

Each chapter is organised topically, enabling students to approach the subject in a systematic and concept-oriented manner. By classifying questions according to topics, learners can identify their strengths and address specific areas where further practice is required. All included questions remain unsolved, deliberately encouraging students to critically evaluate each problem and construct their own responses before consulting the official Cambridge Mark Scheme, which is incorporated to guide them toward exam-standard answering techniques and performance expectations.

A notable feature of this publication is the thoughtful integration of selected activities from the Cambridge Workbook, allowing readers to reinforce the theoretical understanding required at this level. The addition of February–March session variants enhances the breadth of exposure and enables students to familiarise themselves with a wide spectrum of question patterns across different exam cycles.

This edition represents the continuous dedication, commitment, and quality assurance standards upheld by Rabbani Publications & Photocopier. It embodies extensive academic effort, rigorous organisation, and an unwavering focus on empowering students to achieve distinction in their examinations.
May this book serve as a dependable companion, guiding learners to academic excellence and a deeper conceptual insight into the subject.

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Quality Policy

- Customer satisfaction is our priority and achieve this goal we will always, work as a team.
- Produce and supply finest quality goods meeting all the specification including Environmental concern and safety
- Every employee will influence to contribute towards
- Quality improvement to sustain through ideas and innovation.

- گاہک کا اطمینان ہماری اولین ترجیح ہے۔
- اپنے مقصد کے حصول کیلئے ہم ہمیشہ بحیثیت ایک ٹیم کام کرتے ہیں۔
- گاہک کی ضروریات اور ماحولیاتی حالات اور احتیاطی تدابیر کہ مدنظر رکھتے ہوئے معیاری اشیاء فراہم کرتے ہیں۔
- ہر فرد اپنے خیالات اور تخلیقات کے ذریعے بہتر کوالٹی اور اس کو برقرار رکھنے کیلئے موثر کردار ادا کرتا ہے۔

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Q5/12/F/M/18

1 The IP address of a computer is stored as a set of four 8-bit binary numbers.
The network administrator converts each binary number into hexadecimal.

(a) Complete the table to show the hexadecimal equivalent of the binary IP address.
The first number has already been converted.

Binary IP address

11000100	00010000	11111110	00001001

Hexadecimal

C4			

[3]

(b) Explain why the network administrator uses hexadecimal.

.....

.....

.....

.....[2]

Q9/12/F/M/18

2 A 32-second sound clip will be recorded. The sound will be sampled 16000 times a second.
Each sample will be stored using 8 bits.
Calculate the file size in kilobytes. **You must show all of your working.**

File Size ..... kB

[3]

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Q11/12/F/M/18

3 Miriam needs to use a large high-resolution photo as a thumbnail image on a website.
She will use lossy compression to reduce the file size of the photo to create the thumbnail image.

(a) State why a smaller file size is appropriate for this situation.

.....

.....[1]

(b) Explain how lossy compression reduces the file size.

.....

.....

.....

.....

.....

.....[4]

Q1/11/M/J/18

4 Jane answers an examination question about computers and data correctly.
Six different words or numbers have been removed from her answer.
Complete the sentences in Jane's answer, using the list given. Not all items in the list need to be used.

- 2
- 10
- 16
- analogue
- binary
- denary
- digital
- hexadecimal

As humans, we process …… data, but a computer cannot process this type of data. For a computer to be able to process data it needs to be converted to …… data.

As humans, we mostly use a …… number system; this is a base …… number system.

Computers use a …… number system; this is a base …… number system. [6]

RABBANI BROTHERS & SON's

Q2/11/M/J/18

5 Dheeraj identifies **three** hexadecimal numbers.

Write the **denary** number for each of the three hexadecimal numbers:

2A .....

101 .....

21E ..... [3]

Working Space

.....

.....

.....

.....

.....

Q4/11/M/J/18

6 Michele wants to email a file to Elsa. The file is too large so it must be compressed.

(a) Name **two** types of compression that Michele could use.

Compression type 1 .....

Compression type 2 .....

[2]

(b) The file Michele is sending contains the source code for a large computer program.
Identify which type of compression would be most suitable for Michele to use.
Explain your choice.

Compression type.....

Explanation.....

.....

.....

.....

.....

.....

[4]

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Q1/12/M/J/18

7 Different units of data can be used to represent the size of a file, as it changes in size.

Fill in the missing units of data, using the list given:

- byte
- gigabyte (GB)
- megabyte (MB)
- nibble

The units of data increase in size from smallest to largest.

Smallest	bit
↓	……..
	……..
	kilobyte (kB)
	……..
	……..
Largest	terabyte (TB)

[4]

Q2(/12/M/J/18

8 **(a)** Nancy has captured images of her holiday with her camera. The captured images are stored as digital photo files on her camera.

Explain how the captured images are converted to digital photo files.

.....

.....

.....

.....

.....

.....

..... [4]

RBC
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(b) Nancy wants to email the photos to Nadia.

Many of the photos are very large files, so Nancy needs to reduce their file size as much as possible.

Identify which type of compression would be most suitable for Nancy to use. Explain your choice.

Compression type .....

Explanation .....

.....

.....

.....

.....

.....

[4]

Q3/12/M/J/18

9 A stopwatch uses six digits to display hours, minutes and seconds.

The stopwatch is stopped at:

0 2 : 3 1 : 5 8
Hours Minutes Seconds

An 8-bit register is used to store each pair of digits.

(a) Write the 8-bit binary numbers that are currently stored for the **Hours**, **Minutes** and **Seconds**.

Hours								
Minutes								
Seconds								

[3]

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(b) The stopwatch is started again and then stopped.

When the watch is stopped, the 8-bit binary registers show:

Hours	0	0	0	0	0	1	0	1
Minutes	0	0	0	1	1	0	1	0
Seconds	0	0	1	1	0	1	1	1

Write the denary values that will now be shown on the stopwatch.



[3]

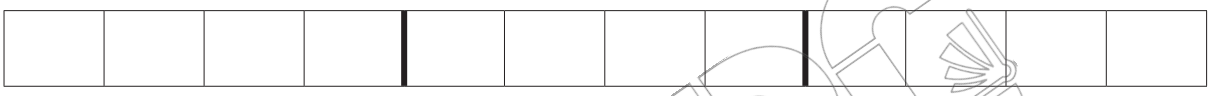
Q4/12/M/J/18

10 Jafar is using the Internet when he gets the message:

"D03, page is not available"

Jafar remembers that hexadecimal is often used to represent binary values in error codes.

Convert the hexadecimal number in the error message into 12-bit binary.



[3]

RABBANI BROTHERS & SON's

Q1/12/O/N/18

11 Computers use a character set to convert text into binary.

One character set that can be used is ASCII.

Each letter in ASCII can also be represented as a denary value.

(a) The word BUS has the denary values:

B	U	S
66	85	83

Convert the denary values into 8-bit binary.

66 | | | | | | | | |

85 | | | | | | | | |

83 | | | | | | | | |

[3]

(b) Each letter in ASCII can also be represented as a hexadecimal value.

The word KEY has the 8-bit binary values:

K	E	Y
01001011	01000101	01011001

(i) Convert the three 8-bit binary values into hexadecimal.

01001011 .....

01000101 .....

01011001 .....

[3]

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(ii) Give **three** other uses of hexadecimal notation in computer science.

1 .....

2 .....

3 .....

[3]

(iii) State **two** benefits of using hexadecimal notation to represent binary values.

Benefit 1 .....

.....

Benefit 2 .....

.....

[2]

Q4/13/O/N/18

12 The MAC address of a device is represented using hexadecimal.

A section of a MAC address is shown. Each pair of hexadecimal digits is stored using 8-bit binary.

(a) Complete the table to show the 8-bit binary equivalents for the section of MAC address. The first number has already been converted.

6A	FF	08	93
01101010			

[3]

(b) Explain why data is stored as binary in computers.

.....

.....

.....

.....[2]

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Q7(c)/13/O/N/18

13 David is writing a program using a high-level language. The program will be published and sold for profit.

(c) David needs to send a large section of the programming code as an email attachment.

He uses lossless compression to reduce the file size.

Explain how the file size is reduced.

.....

.....

.....

.....

.....

.....[3]

Q1/12/F/M/19

14 Elle has a file stored on her computer that is 20 MB in size. Jordan has a file that is 10 GB in size.

Tick (✓) to show which is the **larger** file.

File size	Tick (✓)
20 MB	
10 GB	

[1]

(b) Bob has a file stored on his computer that is 3500 kB in size. Gerty has a file that is 3 MB in size.

Tick (✓) to show which is the **larger** file.

File size	Tick (✓)
3500 kB	
3 MB	

[1]

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