

**Term I REVISION PAPER**

**DECEMBER 2023 - 24**

**Key Stage 3 (Year VIII \_\_)**

**Date : December 2023**

**Name of the Candidate : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Subject : Computer Science**

**Total Maximum Marks : 75**

**INSTRUCTIONS**

**Answer all questions.**Use a black or dark blue pen.
Write your name, center number and candidate number in the boxes at the top of the page. Write your answer to each question in the space provided.
Do **not** use an erasable pen or correction fluid.
Do **not** write on any bar codes.
You may use an HB pencil for any diagrams, graphs, or rough work.

**The total mark for this paper is 75.**The number of marks for each question or part question is shown in brackets [ ].
No marks will be awarded for using brand names of software packages or hardware.

|  |  |  |
| --- | --- | --- |
| **Section** | **Maximum Marks** | **Marks Obtained** |
| **A** | **75** |  |
| **Total** | **75** |  |

**Checked by : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Re-checked by : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. A student has a sound file that is too large to be stored on their external secondary storage device. The student compresses the sound file to make the file size smaller.

The compression method used reduces the sample rate and the sample resolution of the sound file.

(a) State what is meant by the sample rate and sample resolution.

Sample rate ..............................................................................................................................

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Sample resolution .....................................................................................................................

 ...................................................................................................................................................

[2]

(b) Identify which type of compression has been used to compress the sound file.

 ...................................................................................................................................................

 ............................................................................................................................................. [1]

(c) The student sends the sound file to a friend. The file is transmitted across a network that uses packet switching.

 (i) Identify two pieces of data that would be included in the header of each packet.

1 ........................................................................................................................................

2 ........................................................................................................................................

[2]

(ii) Explain how the file is transmitted using packet switching.

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 ..................................................................................................................................... [5]

**2** Binary numbers can be converted to hexadecimal.

(a) Convert the two binary numbers to hexadecimal.

10010011 ..................................................................................................................................

00001101 ..................................................................................................................................

[4]

Working space

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(b) A value is stored as a binary number in a register.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |

A logical right shift of three places is performed on the binary number.

 (i) Complete the binary register to show its contents after this logical right shift.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |

[1]

(ii) State one effect this logical shift has on the binary number.

 ...........................................................................................................................................

 ..................................................................................................................................... [1]

(c) Give two reasons why a programmer may use hexadecimal to represent binary numbers.

1 ................................................................................................................................................

 ...................................................................................................................................................

2 ................................................................................................................................................

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[2]

(d) Denary numbers can also be converted to hexadecimal.

 Convert the denary number to hexadecimal.

301 ...................................................................................................................................... [2]

Working space

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**3** When keys are pressed on a keyboard, the text is converted to binary to be processed by the computer.

(a) Describe how the text is converted to binary to be processed by the computer.

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 ............................................................................................................................................. [3]

(b) Text that is input into a computer can be stored in a text file.

 A text file can be compressed using lossless compression.

 (i) State what effect this has on the file size.

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 ..................................................................................................................................... [1]

 (ii) Describe how lossless compression compresses the text file.

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 ..................................................................................................................................... [4]

 (iii) Give two reasons why the text file may have been compressed.

1 ........................................................................................................................................

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2 ........................................................................................................................................

 ...........................................................................................................................................

[2]

**4** A student uses a mobile phone to take photographs for a school project.

The student needs to transmit the photographs to their computer. They could use serial data

transmission or parallel data transmission to transmit the photographs.

(a) (i) Describe how the photographs would be transmitted using serial data transmission.

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 .............................................................................................................................................. [2]

 (ii) Give two benefits of transmitting photographs using serial data transmission.

1 ...........................................................................................................................................

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2 ...........................................................................................................................................

 ..............................................................................................................................................

[2]

 (iii) State one benefit of the student using parallel data transmission instead of serial data

transmission.

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 ..................................................................................................................................... [1]

5 (a) Draw line to each description to its most appropriate data types. Multiple links can be made for one data type

“S1110”

REAL

54

INTEGER

“TRUE”

BOOLEAN

STRING

False

60.25

“12/12/2000”

 [6]

 (b) Explain the following term

(i) Flowchart …………………………………………………………………………………………………………………………..

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(ii) Pseudocode ……………………………………………………………………………………………………………………..

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(iii) Variable …………………………………………………………………………………………………………………………..

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(iv) Constant ………………………………………………………………………………………………………………………….

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 [4]

**6.** Name and describe the most appropriate programming data type for each of the examples of data given. Each data type must be different.

Data: 55

Data type name …………………………………………………………………………………………………………………

Data type Description ……………………………………………………………………………………………………….

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…………………………………………………………………………………………………………………………………………

Data: BS1100

Data type name …………………………………………………………………………………………………………………………………

Data type Description …………………………………………………………………………………………………………………………

…………………………………………………………………………………………………………………………………………………………………..…………………………………………………………………………………………………………………………

Data: 20.0

Data type name …………………………………………………………………………………………………………………

Data type Description …………………………………………………………………………………………………………

…………………………………………………………………………………………………………………………………………………………………..…………………………………………………………………………………………………………………………

Data: True

Data type name …………………………………………………………………………………………………………………

Data type Description …………………………………………………………………………………………………………

…………………………………………………………………………………………………………………………………………………………………..…………………………………………………………………………………………………………………………

Data: “False”

Data type name …………………………………………………………………………………………………………………

Data type Description …………………………………………………………………………………………………………

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**7**. A program is required to input three unequal numbers and then find the largest among them:

a) Write a pseudocode to ask the user to enter numbers and print the largest number.

Pseudocode

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 [6]

**b)** Draw a flowchart for the program in part (a)

Flowchart:

[8]

8.