

TERM I

Revision Paper

December

2024-2025

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

Date :

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

Subject : Computer Science

Maximum Marks : 75

Instructions to the candidate:

* The Exam is for 1 hour 30 Minutes.
* Read the instructions carefully.
* Please make sure you have all stationery items.
* Write in dark blue or black pen.
* You may use a soft pencil for any diagrams, graphs or rough working.
* Do not use staples, paper clips, highlighters, glue or correction fluid.
* No marks will be awarded for using brand names of software packages or hardware.
* Answer all questions.
* At the end of the examination, fasten all your work securely together.
* The number of marks is given in brackets [ ] at the end of each question or part question.

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| --- | --- | --- |
|  | **Maximum Marks** | **Marks Obtained** |
| **TOTAL** | **75** |  |

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

Rechecked by : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- | --- |
|  | 1. Jack has an MP3 file stored on his computer. 2. Tick (✓) to show which type of data is stored in an MP3 file.   **A** Video  **B** Sound  **C** Image.  [1]   1. Tick (✓) to show whether the MP3 file is a lossy compressed file or a lossless compressed file or not a compressed   Lossy compressed file  Lossless compressed file  NOT a compressed file  [1]   1. All data needs to be converted to binary data so that it can be processed by a computer.   Explain why a computer can only process binary data.  ...............................................................................................................................................  ...............................................................................................................................................  ...............................................................................................................................................  [2]   1. The denary values 64, 101 and 242 are converted to 8‑bit binary values.   Give the 8‑bit binary value for each denary value.  64 ................................................................................................................................................  101 ................................................................................................................................................  242 ................................................................................................................................................  [3]  Working Space  .........................................................................................................................................  .........................................................................................................................................  .........................................................................................................................................   1. The hexadecimal values 42 and CE are converted to binary. Give the binary value for each hexadecimal value.   64 ..................................................................................................................................  CE .................................................................................................................................  [4]  Working space  .........................................................................................................................................  .........................................................................................................................................  .........................................................................................................................................  .........................................................................................................................................   1. An image is stored on a computer. The image is 16‑bit colour and is 100 pixels high and 150 pixels wide. Calculate the file size of the image in bytes. Show all your working   .................................................................................................................................................  .................................................................................................................................................  ..................................................................................................................................................  ..................................................................................................................................................  ..................................................................................................................................................  Answer ………………………… MiB  [3]   1. Binary numbers are stored in registers.   Negative denary numbers can be represented as binary using two’s complement.  Complete the binary register for the denary number –78.  You must show all your working.  Working Space  .........................................................................................................................................  .........................................................................................................................................  .........................................................................................................................................  .........................................................................................................................................  .........................................................................................................................................  .........................................................................................................................................    [2]   1. Two 8‑bit binary numbers are given.   Add the two 8‑bit binary numbers using binary addition.  Give your answer in binary. Show all your working.  [3]   1. Two binary numbers are added by a computer and an overflow error occurs.   Explain why the overflow error occurred.  .........................................................................................................................................  .........................................................................................................................................  .........................................................................................................................................  [2] |
|  | 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.   1. State what is meant by the sample rate and sample resolution.   Sample rate ...............................................................................................................................  ...................................................................................................................................................  Sample resolution......................................................................................................................  ...................................................................................................................................................  [2]   1. Identify which type of compression has been used to compress the sound file.   ...................................................................................................................................................  ..................................................................................................................................................  [1]   1. The student sends the sound file to a friend. The file is transmitted across a network that uses packet switching. 2. Identify two pieces of data that would be included in the header of each packet.   1 ...........................................................................................................................................   1. ........................................................................................................................................   [2]   1. Explain how the file is transmitted using packet switching   ..............................................................................................................................................  ..............................................................................................................................................  ..............................................................................................................................................  ..............................................................................................................................................  ..............................................................................................................................................  ..............................................................................................................................................  ..............................................................................................................................................  ..............................................................................................................................................  ..............................................................................................................................................  [5] |
|  | Data Binary numbers can be converted to hexadecimal.   1. Convert the two binary numbers to hexadecimal.   10010011 ..........................................................................................................................  00001101 ..........................................................................................................................  [4]  Working Space  ..............................................................................................................................................  ..............................................................................................................................................  ..............................................................................................................................................  ..............................................................................................................................................  ..............................................................................................................................................   1. A value is stored as a binary number in a register.   A logical right shift of three places is performed on the binary number.   1. Complete the binary register to show its contents after this logical right shift.   [1]   1. State one effect this logical shift has on the binary number   ............................................................................................................................................  ............................................................................................................................................  [1]   1. Give two reasons why a programmer may use hexadecimal to represent binary numbers.     1 ..........................................................................................................................................  .............................................................................................................................................  2 ..........................................................................................................................................  .............................................................................................................................................  [2]   1. Denary numbers can also be converted to hexadecimal.   Convert the denary number to hexadecimal.  301 ......................................................................................................................................  [2]  Working space ..............................................................................................................................................  ...............................................................................................................................................  ...............................................................................................................................................  ............................................................................................................................................... |
|  | A When keys are pressed on a keyboard, the text is converted to binary to be processed by the computer.   1. Describe how the text is converted to binary to be processed by the computer   ...................................................................................................................................................  ..................................................................................................................................................  ..................................................................................................................................................  ..................................................................................................................................................  ..................................................................................................................................................  ..................................................................................................................................................  [3]   1. Text that is input into a computer can be stored in a text file.   A text file can be compressed using lossless compression.   1. State what effect this has on the file size..   ..........................................................................................................................................  ..........................................................................................................................................  ..........................................................................................................................................  [1]   1. Describe how lossless compression compresses the text file.   ...........................................................................................................................................  ...........................................................................................................................................  ...........................................................................................................................................  ...........................................................................................................................................  ...........................................................................................................................................  ...........................................................................................................................................  ...........................................................................................................................................  ...........................................................................................................................................  [4]   1. Give two reasons why the text file may have been compressed.   1 ..........................................................................................................................................  .............................................................................................................................................  2 ..........................................................................................................................................  .............................................................................................................................................  [2] |
|  | Five statements about serial and parallel data transmission are made in the table below. By placing a tick (/) in the appropriate column, select which statements refer to serial transmission and which statements refer to parallel transmission.   |  |  |  | | --- | --- | --- | | Statement | Serial | Parallel | | Transmission method used by the memory bus inside a computer |  |  | | Data can be skewed (out of synch) when travelling over long distances |  |  | | Least expensive of the two types due to fewer hardware requirements |  |  | | Most appropriate if data is time-sensitive; for example, when live streaming where faster transmission rate is essential |  |  | | Suffers from less risk of external interference |  |  |   [5] |
|  | 1. Write pseudocode/python code to input ten numbers and output the total using FOR loop.   ...........................................................................................................................................  ...........................................................................................................................................  ...........................................................................................................................................  ...........................................................................................................................................  ...........................................................................................................................................  ............................................................................................................................................  ...........................................................................................................................................  ...........................................................................................................................................  [5]   1. Draw a flowchart for the program in part a   [5] |
|  | Write the pseudocode statements to perform this task:   * The user is prompted to enter a number from 1 to 3. * A CASE statement is used to check the value of number:   + If number is 1, it outputs "Tea will be served shortly."   + If number is 2, it outputs "Coffee will be served shortly."   + If number is 3, it outputs "Cappuccino will be served shortly."   + Any other input results in "Invalid number."   .................................................................................................................................................  .................................................................................................................................................  .................................................................................................................................................  .................................................................................................................................................  .................................................................................................................................................  .................................................................................................................................................  .................................................................................................................................................  .................................................................................................................................................  .................................................................................................................................................  .................................................................................................................................................  [5] |
|  | Write a syntax of:  CASE OF OTHERWISE  ..............................................................................................................................................  ................................................................................................................................................  ...............................................................................................................................................  ...............................................................................................................................................  ...............................................................................................................................................  ...............................................................................................................................................  ...............................................................................................................................................  [4] |