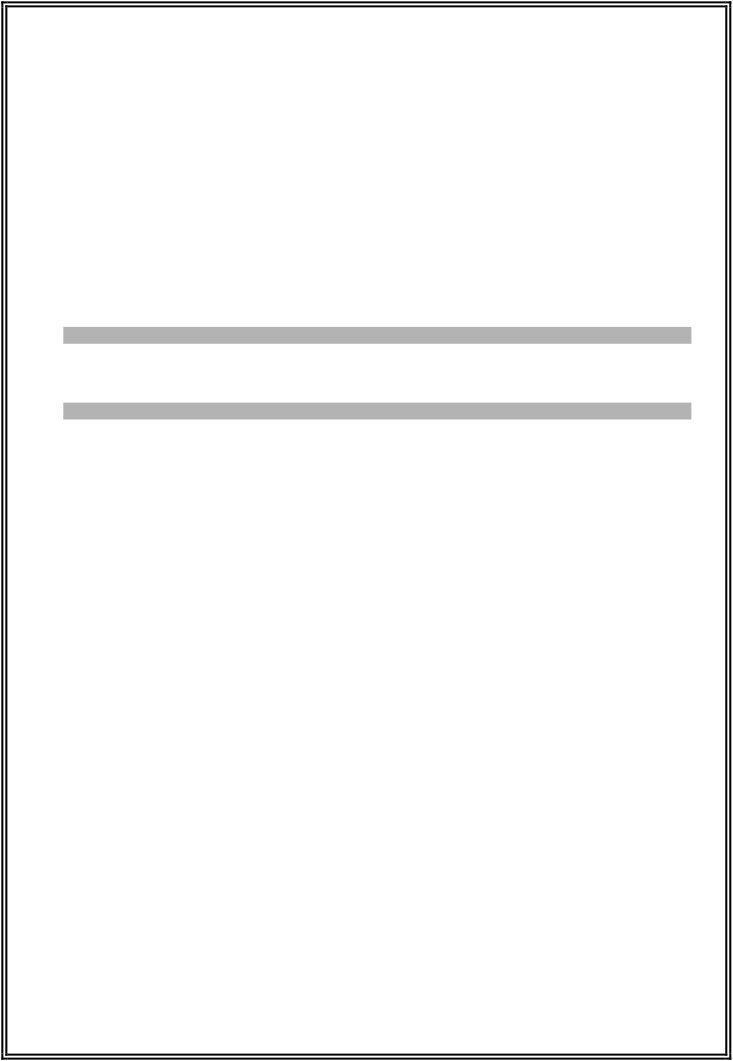
**Evaluation Only. Created with Aspose.Words. Copyright 2003-2023 Aspose Pty Ltd.**



# **GCE A LEVEL MARKING SCHEME**



**SUMMER 2019**

**A LEVEL (NEW)**

**COMPUTER SCIENCE - UNIT 4 1500U40-1**

# **INTRODUCTION**

This marking scheme was used by WJEC for the 2019 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

**GCE A LEVEL (NEW) COMPUTER SCIENCE - UNIT 4**

**SUMMER 2019 MARK SCHEME**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Question** | **Answer** | **Mark** | **AO1** | **AO2** | **AO3** | **Total** |
| 1 (a) (i) | Buffering is the temporary storage of data (1) during input, output or internal transfer of data in a computer system.(1) | 2 | 1.1b |  |  | 12 |
| (ii) | **1 mark for the definition plus one for a valid example up to a maximum of 2 marks.**   * Buffering is required because components of a computer system operate at different speeds. * Fast components (such as the CPU) can carry out other tasks whilst waiting for data to be transferred through the buffer to a slow device (such as a hard drive). | 2 | 1.1b |  |  |  |
| (iii) | **1 mark for each of the following up to a maximum of 2 marks.**   * A double buffer is more efficient than a single buffer. * One buffer can be filling whilst the other is emptying. | 2 | 1.1b |  |  |  |
| (b) (i) | **1 mark for each of the following up to a maximum of 2 marks:**   * An interrupt is a signal to the CPU that attention is required. * Interrupts may be generated by hardware devices or by software processes. | 2 | 1.1b |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Question** | **Answer** | **Mark** | **AO1** | **AO2** | **AO3** | **Total** |
| (ii) | **1 mark for each example of an interrupt plus one mark for the action of to a maximum of 4 marks.** To gain both marks, both the source of the interrupt and its effect should be stated.  **Indicative content**  Many possibilities, including:   * keyboard key press, causing the CPU to accept characters which may be transferred to a word processing document, spreadsheet… * mouse click, causing the program to activate a menu choice… * printer completed processing data, causing the CPU to transfer the next block of data to the printer. * disk drive completed transferring data, causing the CPU to initiate transfer the next block of data. * a running process has completed, so the CPU can reallocate resources * a process has timed-out, so can be terminated by the CPU. * a program has requested data, so the CPU initiates a data input from a disk file. * a file error has occurred, so the CPU suspends the data transfer and displays a warning message on screen. * the user has requested a process to close, so the CPU updates the screen display and reallocates resources. | 4 | 1.1b |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Question** | **Answer** | **Mark** | **AO1** | **AO2** | **AO3** | **Total** |
| 2 (a) | Entity-relationship diagram  **1 mark for each correct 1:n relationship up to a maximum of 3 marks** | 3 |  | 2.1b |  | 9 |
| (b) | **Indicative content**  JOB (JobNumber **[P]**, Description)  WORK SESSION (WorkSessionID (**P**), JobNumber **[F]**, Date, HoursWorked)  STOCK LIST (StockCode **[P]**, Description, UnitPrice)  ITEM USED (ItemUsedID (**P**), JobNumber **[F]**, StockCode **[F]**, Quantity)  **1 mark for four tables**, including a table ITEM USED linking JOB and STOCK LIST  **2 marks,** 1 for each **primary key field [P]** suitably identified in JOB and STOCK LIST tables.  **3 marks,** 1 for each **foreign key field [F]** suitably identified in WORK SESSION and ITEM USED tables.  **Ignore additional fields** | 1 2 3 |  | 2.1b 2.1b 2.1b |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Question** | **Answer** | **Mark** | **AO1** | **AO2** | **AO3** | **Total** |
| 3 (a) | **1 mark** **for:**  SELECT CourseTitle, Degree FROM COURSE | 1 |  |  | 3.1b | 1 |
| (b) | **1 mark** **for:**  SELECT ModuleTitle FROM MODULE WHERE CourseID = '427' | 1 |  |  | 3.1b | 1 |
| (c) | **1 mark** **for:**  UPDATE MODULE SET YearStudied = '3' WHERE ModuleTitle = 'Freshwater Biology'  Accept:  UPDATE MODULE SET YearStudied = '3' WHERE ModuleID = '1022' | 1 |  |  | 3.1b | 1 |
| (d) | **Method 1:**  SELECT ModuleTitle, YearStudied FROM MODULE WHERE CourseID = (SELECT CourseID FROM COURSE WHERE CourseTitle  = 'Modern Languages' AND Degree = 'BA')  **1 mark** **for**  SELECT ModuleTitle, YearStudied FROM MODULE WHERE CourseID =(…)  **1 mark** **for**  SELECT CourseID FROM COURSE WHERE CourseTitle = 'Modern Languages' AND Degree = 'BA'  **Method 2: (accepted not expected)**  SELECT ModuleTitle, YearStudied FROM (COURSE JOIN MODULE ON ModuleID) WHERE CourseTitle = 'Modern Languages' AND Degree = 'BA'  **1 mark** **for joining the two tables in a query.**  **1 mark for selecting both course title and degree.** | 1 1  1 1 |  |  | 3.1b 3.1b  3.1b 3.1b | 2 |
| (e) | **2 marks** **for:**  SELECT ModuleTitle, StudentsEnrolled FROM MODULE WHERE (StudentsEnrolled < 20) OR (StudentsEnrolled > 40)  **1 mark** for specifying less than 20 and more than 40 students enrolled.  **1 mark** for correct OR operation and output of ModuleTitle and StudentsEnrolled fields. | 2 |  |  | 3.1b | 2 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Question** | **Answer** | **Mark** | **AO1** | **AO2** | **AO3** | **Total** |
| 4 (a) | 0101 1100 00 0000 11  5.75 =  **1 mark** for method of obtaining the binary fraction  5.75 = 101.11  **1 mark** for Mantissa = 0101 1100 00 **1 mark** for exponent = 0000 11 | 1  1 1 |  | 2.1a  2.1a 2.1a |  |

**This document was truncated here because it was created in the Evaluation Mode.**