**Paper 1 Section A**

Questions in this section will focus on the topics listed below. Where appropriate we have listed both the topic and content that will be assessed. If there is no content listed then questions may come from any of the content in that overall topic area in the specification.

There are **33 marks** in this year’s section A (this is about 13% of the total A-level marks) There are questions: Q1 = 3 marks ; Q2= 11 marks; Q3=4 marks; Q4=15 marks. There is a copy of the EAD for these questions in ***Appendix (copy of Part A of the 2022 EAD) below.***

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| Spec ref | Name of topic | Content | Past Paper Questions |
| 4.1.1.16 | Recursive  techniques |  | [**https://kyxezok.exampro.net**](https://kyxezok.exampro.net/) |
|
| 4.2.1.2 | Single- and multi- dimensional arrays  (or equivalent) |  | [**https://MOTYUEJ.exampro.net**](https://motyuej.exampro.net/) |
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| 4.2.1.4 | Abstract data  types/data  structures | Be able to distinguish between static and dynamic structures and compare their uses, as well as explaining the advantages and disadvantages of each. |
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| 4.2.2 | Queues |  | [**https://WISIGEO.exampro.net**](https://wisigeo.exampro.net/) |
| 4.2.3 | Stacks |  | [**https://YOBOOIQ.exampro.net**](https://yobooiq.exampro.net/) |
| 4.2.4  Graphs | | Be aware of a graph as a data structure used to  represent more complex relationships.  **AND**  Be able to explain the terms:  • graph  • weighted graph  • vertex/node  • edge/arc  • undirected graph  • directed graph.  **AND**  Know how an adjacency matrix and an adjacency  list may be used to represent a graph. | [**https://QEYIAUQ.exampro.net**](https://qeyiauq.exampro.net/) |
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| 4.2.5 | Trees | Know that a tree is a connected, undirected  graph with no cycles. | <https://iujicob.exampro.net/> |
|
| 4.3.1 | Graph-traversal |  | [**https://GEHEVIP.exampro.net**](https://gehevip.exampro.net/) |
| 4.3.4 | Searching  algorithms |  | [**https://YIGATED.exampro.net**](https://yigated.exampro.net/) |
|
| 4.3.5 | Sorting algorithms |  | [**https://NICYUAS.exampro.net**](https://nicyuas.exampro.net/) |
| 4.3.6 | Optimisation  algorithms |  | Only one previous question, which is a graph traversal |
|
| 4.4.1.1 | Problem-solving | Be able to develop solutions to simple logic problems. | [**https://UAHOMYE.exampro.net**](https://uahomye.exampro.net/) |
| 4.4.1.2 | Following and  writing algorithms | Be able to hand-trace algorithms. |  |
|
| 4.4.4.3 | Order of complexity |  | [**https://BILOWYD.exampro.net**](https://bilowyd.exampro.net/) |
| 4.4.4.7 | Halting problem |  | [**https://SOXUSIE.exampro.net**](https://soxusie.exampro.net/) |



**Paper 7517/1 (all programming languages) Section B – No advance information for this section**

**Paper 7517/1 (all programming languages) Section C – No advance information for this section** – questions in this section will refer to the Skeleton Program and could also refer to any content from sections 4.1, 4.2, 4.3 and 4.4 of the specification.

**Paper 7517/1 (all programming languages) Section D – No advance information for this section**

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**Paper 2**

Questions in this examination will focus on the topics listed below. Where appropriate we have listed both the topic and content that will be assessed. If there is no content listed then questions may come from any of the content in that overall topic area of the specification

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| **Spec-ref** | **Name of topic** | **Content** | **Past Paper Questions** |
| 4.5.2 | Number bases |  | [**https://KOTAREY.exampro.net**](https://kotarey.exampro.net/) |
| 4.5.3 | Units of  information | No previous questions on kibi,mebi,gibi BUT expect it in the exam! | [**https://FURUDIK.exampro.net**](https://furudik.exampro.net/) |
|  |
| 4.5.4.2 | Unsigned binary  arithmetic |  | [**https://AYDIUOV.exampro.net**](https://aydiuov.exampro.net/) |
|  |
| 4.5.4.3 | Signed binary  using two’s  complement |  | [**https://TUUYQYD.exampro.net**](https://tuuyqyd.exampro.net/) |
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| 4.5.4.4 | Numbers with a  fractional part |  | [**https://SENIGEN.exampro.net**](https://senigen.exampro.net/) |
|  |
| 4.5.4.6 | Absolute and  relative errors | Be able to calculate the absolute error of  numerical data stored and processed in  computer systems.  **AND**  Be able to calculate the relative error of  numerical data stored and processed in  computer systems. | [**https://VADADOP.exampro.net**](https://vadadop.exampro.net/) |
| 4.5.4.8 | Normalisation of floating point form |  | See 4.5.4.4 |
| 4.5.6.7 | Digital representation of sound | Calculate sound sample sizes in bytes. | [**https://FUCOCOS.exampro.net**](https://fucocos.exampro.net/) |
| 4.5.6.8 | Musical Instrument Digital Interface (MIDI) |  | [**https://TUXORIY.exampro.net**](https://tuxoriy.exampro.net/) |

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| 4.6.1.2 | Classification of software |  | [**https://BOVUYOC.exampro.net**](https://bovuyoc.exampro.net/) |
| 4.6.1.3 | System software |  | See 4.6.1.2 |
| 4.6.1.4 | Role of an  operating system  (OS) | Know that the OS handles resource management, managing hardware to allocate processors, memories and I/O devices among competing processes. | [**https://FELIHAE.exampro.net**](https://felihae.exampro.net/) |
| 4.6.2 | Classification of  programming  languages | Know that low-level languages are considered  to be:  • machine-code  • assembly language.  **AND**  Describe machine-code language and  assembly language.  **AND**  Understand the advantages and disadvantages  of machine-code and assembly language  programming compared with high-level  language programming. | [**https://VINEBUF.exampro.net**](https://vinebuf.exampro.net/) |
| 4.6.4 | Logic gates |  | [**https://XUCEJOI.exampro.net**](https://xucejoi.exampro.net/) |
| 4.6.5 | Boolean algebra |  | [**https://YODEFEU.exampro.net**](https://yodefeu.exampro.net/) |

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| 4.7.1 | Internal hardware  components of a  computer | Be able to explain the difference between von  Neumann and Harvard architectures and  describe where each is typically used. | [**https://JUGIWOJ.exampro.net**](https://jugiwoj.exampro.net/) |
|  |
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| 4.7.2 | The stored  program concept |  | [**https://NYTYNUQ.exampro.net**](https://nytynuq.exampro.net/) |
|  |
| 4.7.3.3 | The processor  instruction set |  | [**https://YAWOMIT.exampro.net**](https://yawomit.exampro.net/) |
|  |
| 4.7.3.4 | Addressing modes |  | [**https://XUKUWYE.exampro.net**](https://xukuwye.exampro.net/) |
| 4.7.3.5 | Machine-code/assembly  Language operations |  | [**https://FOWUEYV.exampro.net**](https://fowueyv.exampro.net/) |
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| 4.7.4.1 | Input and output  devices |  | [**https://YYCUEUH.exampro.net**](https://yycueuh.exampro.net/) |
|  |
| 4.7.4.2 | Secondary storage  devices | Explain the need for secondary storage within a  computer system.  **AND**  Know the main characteristics, purposes,  suitability and understand the principles of  operation of the following devices:  • hard disk  • optical disk  • solid-state disk (SSD). | [**https://LYHUVEX.exampro.net**](https://lyhuvex.exampro.net/) |
| 4.8.1 | Individual (moral),  social (ethical),  legal and cultural  issues and  opportunities |  | [**https://HODAQOS.exampro.net**](https://hodaqos.exampro.net/) |
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| 4.9.1 | Communication |  | [**https://LAWEWEJ.exampro.net**](https://lawewej.exampro.net/) |
| 4.9.2.2 | Types of  networking  between hosts |  | [**https://GODEMEC.exampro.net**](https://godemec.exampro.net/) |
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| 4.9.3.1 | The Internet and  how it works | Describe the term 'uniform resource locator'  (URL) in the context of internetworking.  **AND**  Explain the terms ‘fully qualified domain name’  (FQDN), ‘domain name’ and ‘IP address’.  **AND**  Describe how domain names are organised.  **AND**  Understand the purpose and function of the  domain service and its reliance on the Domain  Name Server (DNS) system. | [**https://MUMEBEU.exampro.net**](https://mumebeu.exampro.net/) |
| 4.9.4.11 | Thin- versus thick-  client computing |  | [**https://EOCAJUJ.exampro.net**](https://eocajuj.exampro.net/) |

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| 4.10.1 | Conceptual data  models and entity  relationship  modelling |  | [**https://PIVUFIU.exampro.net**](https://pivufiu.exampro.net/)  (I’ve put all the DB questions together |
| 4.10.2 | Relational  databases | The content in this section will not be directly  assessed but students will need to have an  understanding of it to answer other questions. |
| 4.10.3 | Database design  and normalisation  techniques |  |
| 4.10.4 | Structured Query  Language (SQL) |  |

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| 4.12.1.3 | Function  application |  | [**https://NIIADUZ.exampro.net**](https://niiaduz.exampro.net/) |
|  |
| 4.12.1.5 | Composition of  functions |
|  |
| 4.12.2 | Writing functional  programs |
|  |
| 4.12.3 | Lists in functional  programming |
|  |

# Appendix (copy of Part A of the 2022 EAD)

Answer **all** questions.

You **must save** this document at regular intervals or you may lose your work.

**Section A**

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| **Question 01** | | | | |  |  |
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| **Question 02** | | | | |  |  |
| **0** | **2** | **.** | **1** |  | |  |
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| **Question 03** | | | | |  |  |
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| **Question 04** | | | | |  |  |
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| **0** | **4** | **.** | **5** | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  | |  |  | | | | | | | |  |
| **0** | **4** | **.** | **6** |  |  |
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