

Advance information June 2022

AS Computer Science (7516)

Version 1.0

Because of the ongoing impacts of the Coronavirus (COVID-19) pandemic, we are providing advance information on the focus of June 2022 exams to help students revise.

This is the advance information for AS Computer Science (7516).

Information

- This advance information covers component **7516/2** only.
- It is **not** permitted to take this advance information into the exam.
- The format of the papers remains unchanged.
- The information is presented in specification order and not in question order.
- Exam questions will sample content from the areas specified in this advance information.

Advice

- Students and teachers should consider how to focus their revision of other non-listed parts of the specification, for example to review whether other topics may provide knowledge which helps understanding in relation to the areas being tested in 2022.
- Students will be credited for using any relevant knowledge from any non-listed topic areas when answering questions.
- Students will still be expected to apply their knowledge to unfamiliar contexts.
- Students will be expected to draw on knowledge, skills and understanding from across the specification when responding to synoptic questions.

Focus of the June 2022 exam

Paper 7516/1 (all programming languages)

There is no advance information for this paper; questions could be based on any content from sections 3.1, 3.2, 3.3 and 3.4 of the specification.

Paper 7516/2

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.

Specification reference	Name of topic	Content
3.5.1	Number systems	
3.5.2	Number bases	Be familiar with the concept of a number base, in particular: <ul style="list-style-type: none">• decimal (base 10)• binary (base 2)• hexadecimal (base 16). AND Convert between decimal, binary and hexadecimal number bases.
3.5.4.1	Unsigned binary	
3.5.4.2	Unsigned binary arithmetic	
3.5.5.2	ASCII and Unicode	
3.5.5.3	Error checking and correction	
3.5.6.2	Analogue and digital	
3.5.6.3	Analogue/digital conversion	
3.5.6.7	Data compression	Understand the difference between lossless and lossy compression and explain the advantages and disadvantages of each.
3.5.6.8	Encryption	Be familiar with Vernam cipher or one-time pad and be able to apply it to encrypt a plaintext message and decrypt a ciphertext. Explain why Vernam cipher is considered as a cipher with perfect security.
3.6.1.1	Relationship between hardware and software	
3.6.1.3	System software	
3.6.3	Types of program translator	Explain why an intermediate language such as bytecode is produced as the final output by some compilers and how it is subsequently used.

3.6.4	Logic gates	
3.6.5	Boolean algebra	
3.7.1	Internal hardware components of a computer	
3.7.3.1	The processor and its components	
3.7.3.2	The Fetch-Execute cycle and the role of registers within it	
3.7.3.4	Addressing modes	
3.7.3.5	Machine-code/assembly language operations	
3.7.3.6	Factors affecting processor performance	
3.8.1	Individual (moral), social (ethical), legal and cultural issues and opportunities	
3.9.1.1	Communication methods	
3.9.1.2	Communication basics	Define: <ul style="list-style-type: none"> • baud rate • bit rate • bandwidth • latency • protocol.
3.9.2.1	Network topology	

END OF ADVANCE INFORMATION