CIE A Level 2022 (9618) Computing Teaching Resources & Revision Material

CIE A Level 2022 (9618) Computer Science mapping file.

	IGCSE specification	A Level Document Reference	Examined in Paper…
1	Information representation		Paper 1 Theory Fundamentals
1.3	Data representation	28. Binary 29. Hexadecimal 31. Character sets	Paper 1 Theory Fundamentals
1.2	Multimedia	31A. Images 31B. Sound	Paper 1 Theory Fundamentals
1.3	Compression	14. Compression, encryption and hashing	Paper 1 Theory Fundamentals
2	Communication		Paper 1 Theory Fundamentals
2.1	Networks including the internet	19. Introduction to computer networks 20. Network topology 21. Network protocols and layers 22. Internet technologies 27. Cloud computing and web applications	Paper 1 Theory Fundamentals
3	Hardware		Paper 1 Theory Fundamentals
3.1	Computers and their components	04. Input devices 05.Output devices 06. Data Storage	Paper 1 Theory Fundamentals
3.2	Logic gates and circuits	39. Logic gates and circuits	Paper 1 Theory Fundamentals
4	Processor fundamentals		Paper 1 Theory Fundamentals
4.1	CPU architecture	01. Computer architecture 02. Functions and characteristics of CPU 03. Types of processor 21. Data Transmission Technologies	Paper 1 Theory Fundamentals
4.2	Assembly language	13. Assembly languages	Paper 1 Theory Fundamentals
4.3	Bit manipulation	28A. Monitoring and control system	Paper 1 Theory Fundamentals
5	System software		Paper 1 Theory Fundamentals
5.1	Operating system	07. Systems software 08. Categories of software	Paper 1 Theory Fundamentals
5.2	Language translators	09. Translators 49. Integrated development environment	Paper 1 Theory Fundamentals

6	Security, privacy and data integrity		Paper 1 Theory Fundamentals
6.1	Data security	23. Network security	Paper 1 Theory Fundamentals
6.2	Data integrity	21A. Data transmission technologies	Paper 1 Theory Fundamentals
7	Ethics and ownership	43. Computing related legislation 44. Moral and ethical issues	Paper 1 Theory Fundamentals
8	Database and data modelling		Paper 1 Theory Fundamentals
8.1	Database concepts	15. Introduction to databases 16. Relational databases	Paper 1 Theory Fundamentals
8.2	Database Management System (DBMS)	18A. Database Management System	Paper 1 Theory Fundamentals
8.3	Data Definition Language (DDL) and Data Manipulation Language (DML)	17. Structured Query language (SQL)	Paper 1 Theory Fundamentals
9	Algorithm design and problem-solving		Paper 2 Fundamental Problem-solving and Programming Skills
9.1	Computational thinking skills	45. Computational thinking 51. Computational methods	Paper 2 Fundamental Problem-solving and Programming Skills
9.2	Algorithms	11. Introduction to algorithms 46. Introduction to programming 47. Basic programming constructs	Paper 2 Fundamental Problem-solving and Programming Skills
10	Data types and structures		Paper 2 Fundamental Problem-solving and Programming Skills
10.1	Data types and records	46. Introduction to programming 32. Arrays, tuples and records	Paper 2 Fundamental Problem-solving and Programming Skills
10.2	Arrays	32. Arrays, tuples and records 53. Searching algorithms 54. Sorting algorithms	Paper 2 Fundamental Problem-solving and Programming Skills
10.3	Files	48A. File and exception handling	Paper 2 Fundamental Problem-solving and Programming Skills
10.4	Introduction to Abstract Data Types (ADT)	33. Lists and linked lists 34. Stacks 35. Queues	Paper 2 Fundamental Problem-solving and Programming Skills
11	Programming		Paper 2 Fundamental Problem-solving and Programming Skills
11.1	Programming basics	46. Introduction to programming	Paper 2 Fundamental Problem-solving and Programming Skills

11.2	Constructs	47. Basic programming constructs	Paper 2 Fundamental Problem-solving and Programming Skills
11.3	Structured programming	48. Functions and procedures	Paper 2 Fundamental Problem-solving and Programming Skills
12	Software development		Paper 2 Fundamental Problem-solving and Programming Skills
12.1	Product development lifecycle	10. Software development lifecycle 49. Integrated development environment	Paper 2 Fundamental Problem-solving and Programming Skills
12.2	Program design	11A: Algorithm design methods 11B. Structure charts 57. Finite State Machines	Paper 2 Fundamental Problem-solving and Programming Skills
12.3	Program testing and maintenance	10. Software development lifecycle	Paper 2 Fundamental Problem-solving and Programming Skills
13	Data representation		Paper 2 Fundamental Problem-solving and Programming Skills
13.1	User-defined data types	enumerated, pointer set, record and class/object	Paper 3 Advanced Theory
13.2	File organisation and access	serial, sequential (using a key field), random (using a record key)	Paper 3 Advanced Theory
13.3	Floating point numbers, representation and manipulation	two's complement form, normalisation	Paper 3 Advanced Theory
14	Communication and Internet technologies		Paper 3 Advanced Theory
14.1	Protocols	TCP/IP protocol implementation can be viewed as a stack, understanding of protocols (HTTP, FTP, POP3, IMAP, SMTP, BitTorrent) and their purposes	Paper 3 Advanced Theory
14.2	Circuit switching, packet switching	19. Introduction to computer networks	Paper 3 Advanced Theory
15	Hardware and Virtual machines		Paper 3 Advanced Theory
15.1	Processors, parallel processing and Virtual machines	RISC, CICS, SISD, SIMD, MISD, MIMD, VMs	Paper 3 Advanced Theory
15.2	Boolean algebra	39. Logic gates and circuits 40. de Morgan's laws 41. Karnaugh Maps 42. Adders and flip-flops	Paper 3 Advanced Theory
16	System software		Paper 3 Advanced Theory
16.1	Purposes of an operating system (OS)	7. Systems software	Paper 3 Advanced Theory

16.2	Translation software	58. Regular languages: expressions	Paper 3 Advanced Theory
17	Security		Paper 3 Advanced Theory
17.1	Encryption, encryption protocols and digital certificates	14. Compression, encryption and hashing 23. Network security	Paper 3 Advanced Theory
18	Artificial intelligence		Paper 3 Advanced Theory
18.1	Artificial intelligence	36. Graphs 55. Algorithms for main data structures 56. Dijkstra's shortest path algorithm and A* algorithm 44. Moral and ethical issues	Paper 3 Advanced Theory
19	Computational thinking and problem-solving		Paper 3 Advanced Theory Paper 4 Practical
19.1	Algorithms	45. Computational thinking 52. Evaluation and design of algorithms 53. Searching algorithms 54. Sorting algorithms 33. Lists and linked lists 34. Stacks 35. Queues 37. Trees 38. Hash tables	Paper 3 Advanced Theory Paper 4 Practical
19.2	Recursion	48. Functions and procedures	Paper 3 Advanced Theory Paper 4 Practical
20	Further programming		Paper 3 Advanced Theory Paper 4 Practical
20.1	Programming paradigms	12. Procedural and object-oriented languages 50. Object-oriented techniques	Paper 3 Advanced Theory Paper 4 Practical
20.2	File processing and exception handling	48A. File and exception handling	Paper 3 Advanced Theory Paper 4 Practical