

Year 10 Study Guide for Half-Yearly

Number representation: decimal, binary, hex. Convert from one form to another. Unsigned and signed numbers, two's complement, finding the minimum and maximum of a representation. Addition and subtraction of binary numbers (including two's complement).

Boolean algebra: truth tables, logic circuits, Boolean expressions.

Architecture: CPU, CU, ALU, registers (PC, IR, Accumulator, MDR, MAR), fetch-decode-execute cycle. MHz, GHz. RAM, address, location, data bus, address bus, control bus. 'Read' operation and 'write' information. Bit, byte, cache, secondary storage (hard disk, tape, SSD, CD, DVD), ROM (bootstrap loader, I/O library, POST etc.), Kilo, Mega, Giga, Tera. Hz. DRAM, SRAM. Device driver, buffer.

Databases: relational database, primary key, foreign key, relationships (one-one, one-many, many-many)

Operating systems: types of OSs (Batch, real-time, multi-tasking etc.), scheduling policies.

Java: flowcharts, pseudocode, Class, variable, types, declaration, statement, assignment statement, condition, Keyboard class, if..then..else, for loop, IDE (BlueJ), API

Translators: compiler, interpreter, assembler. Bytecode. Syntax error, logical error and run-time error.