

# Pearson Edexcel International Advanced Level

## Sample assessment material

Paper  
reference

**WCP03/01**

## Computer Science

International Advanced Level

Unit 3: Advanced Principles of Computer Science

Assembly Language Instruction Set

### Resource Booklet

Do not return this Booklet with the question paper.

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### Arithmetic and logical operations

ADD Rd, Rn, <operand>	Add the value in <operand> to the value in register Rn and store the result in register Rd.
SUB Rd, Rn, <operand>	Subtract the value in <operand> from the value in register Rn and store the result in register Rd.
AND Rd, Rn, <operand>	Perform a bitwise logical AND between the values in register Rn and <operand>, and store the result in register Rd.
ORR Rd, Rn, <operand>	Perform a bitwise logical OR between the values in register Rn and <operand>, and store the result in register Rd.
EOR Rd, Rn, <operand>	Perform a bitwise logical XOR between the values in register Rn and <operand>, and store the result in register Rd.
MVN Rd, <operand>	Performs a bitwise logical NOT to the value in <operand>, and store the result in register Rd.
LSL Rd, Rn, <operand>	Logically shift the value stored in register Rn to the left by the number of bits specified by <operand> and store the result in register Rd.
LSR Rd, Rn, <operand>	Logically shift the value stored in register Rn to the right by the number of bits specified by <operand> and store the result in register Rd.

### Comparison and branch instructions

CMP Rn, <operand>	Compare the value in <operand> with the value stored in register Rn and set status bits based on the outcome.
B <label>	Unconditionally branch to the address at position <label>.
B<condition> <label>	Conditionally branch to the instruction at position <label> when the last CMP instruction result matches the specified <condition>.

### Data movement and other instructions

MOV Rd, <operand>	Move the value in <operand> into register Rd.
LDR Rd, <address>	Load the contents of the memory location <address> into register Rd.
STR Rd, <address>	Store the contents of Rd to the memory location <address>.
HALT	Halt program execution.

### Syntax notes

<operand>	References either #x decimal value or Rn register n
<condition>	EQ equal to, NE not equal to, GT greater than, LT less than
<label>:	A label definition is formed by an identifier followed by a colon
Rd, Rn	General purpose registers R0 to R12