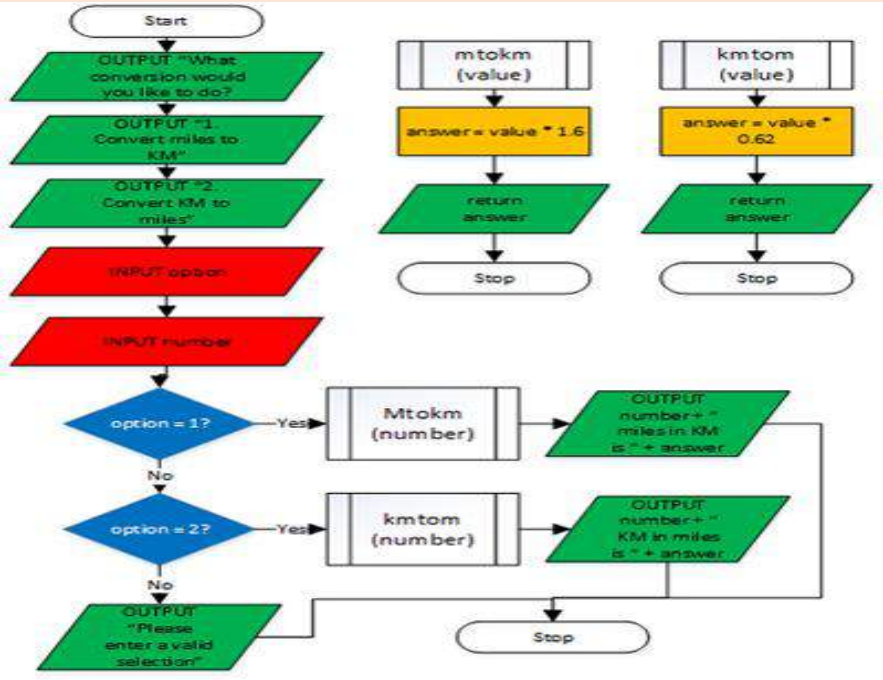
Paper 2 Revision

Flow Diagrams + Pseudocode




```
function mtokm(value)
        answer = value * 1.6
        return answer
endfunction
function kmtom(value)
        answer = value * 0.62
        return answer
endfunction
OUTPUT "What conversion would you like to do?"
OUTPUT "1. Convert miles to Kilometres")
OUTPUT "2. Convert Kilometres to Miles")
INPUT option
INPUT number
IF option = 1 THEN
        OUTPUT number + " miles in KM is " + mtokm(number)
ELSEIF option = 2 THEN
        OUTPUT number + " KM in miles is " + kmtom(number)
ELSE
        OUTPUT "Please enter a valid selection"
ENDIF
```

Units	
Bit	1 binary digit
Nibble	4 Bits
Byte	8 Bits
Megabyte (MB)	1024 Bits
Gigabyte (GB)	1024 MB

Programming Constructs

Sequence – linear one step after another
Selection – IF … ELSE conditions
Iteration - Count controlled loop
- While loop
- For loop

Translators and Facilities of Languages

Translators – high-level to low level language
Assembler – Low level
Compiler – Converts high level to Low-level (exe files)
Interpreter – Converts high level (python etc.) to low level at runtime
IDE = Text Editor + Syntax Highlighting
Low-level = Binary

Images

Bit Patterns, Pixels
Bit depth - 1 bit (black and white)
- 4 bit (16 colours)
- 8 bit (256 colours)
-32 bit(16777216 + Transparency)

Resolution – number of pixels in an image
Compression
- lossy = JPG
- lossless = PNG (allows transparency)

Metadata – Data about data

Mathematical Operators

\+ Addition
\- Subtraction
/ Division
* Multiplication
MOD Returns remainder after division
DIV Returns floor division integer value

Logical Operators

AND All criteria must be met
OR 1 part of the criteria must be met
NOT The criteria must not be met

Comparison Operators

==	Equal to
!=	Not equal to
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

Data Types

Character (char)	1 single character	"M"
Real (float)	Decimal number	20.5
Integer (int)	Whole numbers	13
Boolean (bool)	True/False	True
String (str)	Any characters	"Lemon"

Sound

Analogue – what you hear with your ears
Digital – Samples taken at set intervals = reduced quality compared with live audio

Keywords

Amplitude, Frequency, Sample, Bit rate, Quality, Channels =mono/stereo
Compression
- lossy = MP3 / MP4
- lossless = FLAC / Dolby True HD

SQL Syntax

SELECT fname from Employees WHERE ID>3500
Display a list first names from the Employees table filtered by the value of the ID field being larger than 3500
SELECT fname, salary from Employees WHERE (ID>3500 AND salary>80000)
Display a list of first names and salaries from the Employees table filtered by the value of the ID field larger than 3500 at the same time as the value of the salary field exceeds 80000

SELECT *	Get all the data
FROM	From the table
WHERE	Which is equal to some criteria