

Ex1. Explain the role of the funct3 and funct7 fields of the R-format instructions?

- funct3 and funct7 fields are used to encode specific operation such that instructions can be performed.
- These fields also provide information to distinguish between operations which share the same opcode.
- funct3 is 3 bits length and funct7 is 7 bits length.
- For example, funct3 and funct7 differentiate R-format instructions:

Instructions	Opcode	funct3 (Hex)	funct7 (Hex)
ADD	0110011	0x0	0x00
SUB	0110011	0x0	0x20
XOR	0110011	0x4	0x00
OR	0110011	0x6	0x00
AND	0110011	0x7	0x00
Shift Left Logical	0110011	0x1	0x00
Shift Right Logical	0110011	0x5	0x00
Shift Right Arith	0110011	0x5	0x20
Set Less Than	0110011	0x2	0x00
Set Less Than (U)	0110011	0x3	0x00