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Section: 9

Final

Answer to the Question No - 1

We're given 64 registers where each register can store 128-bit data.

We use decoder to traverse through all the registers & with the select bits of the decoder we do the traversing. So for us to traverse them all we need

$$2^n = 64 = 2^6$$

$$\Rightarrow n = 6 \text{ bits}$$

So, the values of the RS, RT, RD will be 6 bits.

And as we're using 128-bit data width registers the value of n-bit for ALU would be 128.

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Answer to the Question No-2

Designing a RF for an 8 bit ALU where RS, RT, RD are 1 bit:

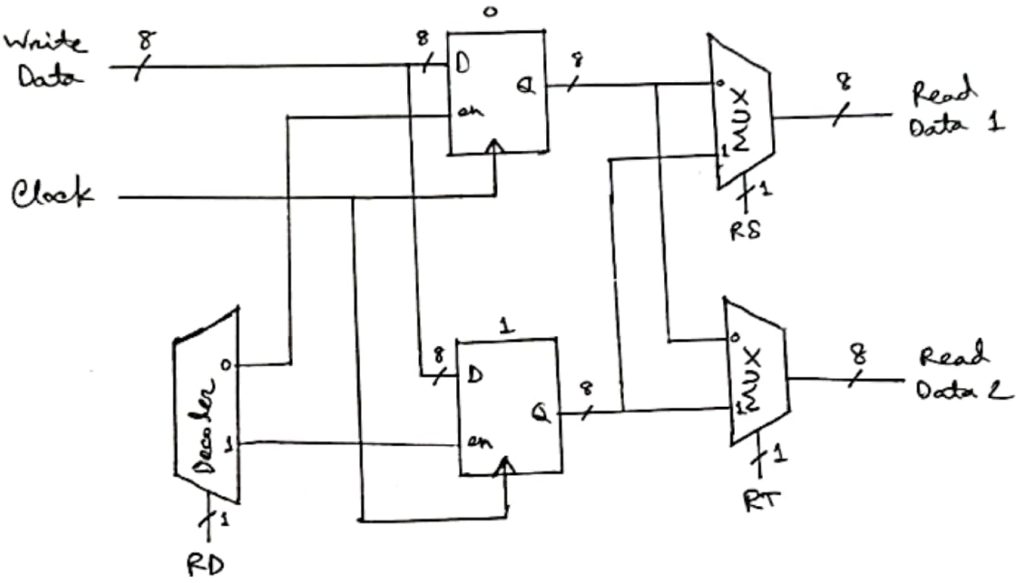

Figure: RF for an 8-bit ALU where RS, RT, RD are 1-bit