Assignment on Code generation.

Consider the following three-address code:

p = q + r

s = p + q

u = s \* v

if ( u > 100 )

v = r + u

else

q = s \* u

q = v + r

1. Construct the flow graph of the above piece of code.
2. Find the liveness and next use for each variable at each statement and at the entry of each basic block.
3. Construct the Register Interference Graph.
4. Write a target code for the above code. Ensure maximum reuse of the register. Justify your answer.

Questions a to c are mandatory and d is a bonus question with extra marks.