*School of Software Engineering*

UNIVERSITYOF SCIENCE AND TECHNOLOGY OF CHINA

**Compilers, Spring 2024**

**Quiz 11: Static Single-Assignment (SSA)**

Name: Id:

1. Consider the following control-flow graph:

(a) Turn this CFG to static single-assignment form (SSA). (You only need to write down the final result, that is, the result after ϕ-function insertion and variable renaming.)

(b) Do constant propagation optimization on the SSA.

(c) Do dead-code elimination optimization on the SSA.

(d) Transform the SSA after (b) and (c) back to CFG.

**b=a+c**

**a=b\*2**

**a=b+1**

**c=c+4**

**a=b-c**

**b=c+a**

**b=c+b**

**a=2**

**b=3**

**c=4**