*School of Software Engineering*

UNIVERSITYOF SCIENCE AND TECHNOLOGY OF CHINA

**Compilers, Spring 2024**

**Quiz 10: Data-flow Analysis**

Name: Id:

1. Consider the following control-flow graph:

(a) Calculate, for each statement, the liveness information; that is: you should calculate two sets for each statement: *live\_in* and *live\_out*.

(b) Based on the liveness information above, do dead-code elimination, that is, you should mark the dead statements.

(c) Write down the set of variables that the compiler should issue a warning message for uninitialized variables like: "Uninitialized variable: ...".

**a=k+2**

**c=d-b**

**d=a+b**

**f=i-d**

**e=k+2**

**b=a+f**

**d=b\*2**

**g=2\*2**

**d=b+1**

**i=i+1**

**c=d+4**

**f=b-d**

**k=d+2**

**e=c+a**

**k=a-e**

**f=e+k**

**d=c+b**