

(1)

What follows is the content of a C program **example.c**.

```
#include <stdio.h>          /* location 1*/
int bar(int x)              /* location 2*/
{ int a, b, c;              /* location 3*/
  c=x;                       /* location 4*/
  b=x*9;                     /* location 5*/
  a=foo();                   /* location 6*/
  return a;                  /* location 7*/
}                             /* location 8*/
int foo()                   /* location 9*/
{int a=1, b=2, c;           /* location 10*/
  c=a+b;                     /* location 11*/
  return c;                  /* location 12*/
}                             /* location 13*/
int main()                  /* location 14*/
{int a=1, b=2, c=3;         /*location 15*/
  return bar(a);            /* location 16*/
}                             /* location 17*/
```

- (a) Are variable b defined at location 3, variable b defined at location 10, and variable b defined at location 15 the same variable?
- (b) During run time, at what locations of the above program, variable b defined at location 15 and variable b defined at location 3 have storage bound to them, but variable b defined at location 10 does not have storage bound to it?

Ans.

(2)

Assume the executable file of the program **example.c** in question (1) is called **example.exe**. (a) Which program handles the statement at location 1 in file **example.c**? (b) Which program handles the statement at location 2 in file **example.c** to generate corresponding machine code in **example.exe**?

Ans.