# VARIABLE SCOPE AND STORAGE SPECIFIER

1. Refer the code snippet below and answer the queries

int val;

extern void display();

static int function()

{

val++;

int x = 10;

int i = 0;

static int j = 20;

for (; i < 3; i++)

{

int x = 20;

printf(“\n %d”, x+i);

x+=3;

j++;

display();

}

return val;

}

int main(int argc, char \*argv[])

{

val= 0;

function();

return 0;

}

1. What is the change required if val declaration line below is to be moved to an other file?

A: Declare extern int val; in the current file, and define int val = 0; in another file.

1. What is the value of x after for loop execution?

A: The value of x outside the loop remains 10 after the loop execution.

1. What does the keyword static in following lines mean?

static int function()

static int j = 20;

A: static makes the function/file-scoped variable persist across function calls or restricts function visibility to the current file.

1. What is the value of j after for loop execution?

A: After the loop, j will be 23 (starting from 20, incremented 3 times).

1. Identify the variables which would be in the stack of function()

A: The stack will contain x = 10, i = 0, and the return address; j is stored in the data segment due to static.

1. What does extern in the following line mean?

extern void display();

A: extern tells the compiler the display() function is defined elsewhere and will be linked during the linking phase.