CS 161 Exam 2:

$FORM\ 2$ (Please put your name and form # on the scantron!!!!)

Tr	rue (A)/False(B) (2 pts each):
1.	The amount of memory used by an array depends upon the array's data type and how many elements in the array currently have data stored in them.
2.	In C++, if you attempt to store more data in an array than it can hold, the compiler will issue an error.
3.	You may use the exit() function to return the flow of control from a function back to main(), regardless of where the function was called from.
	To account for the null terminator stored at the end of each C-string, the strlen function returns the number of characters in its argument, plus one. Any algorithm that can be coded with recursion can also be coded using a loop.
5.	Any algorithm that can be coded with recursion can also be coded using a loop.
6.	A one-dimensional array can be initialized at the time it is defined, but a two-dimensional array cannot be.
7.	An individual array element can be processed or passed to a function just like a regular C++ variable.
8.	The following array definition is legal because C++ allows arrays to be implicitly sized. int grades[];
9.	C++ allows arrays to have more than two dimensions.
10.	The following statement is a valid C++ array definition. double money[25.00];
11.	A pointer can be passed as an argument to a function.
12.	The ampersand (&) is used to dereference a pointer variable in C++.
	C-string can be assigned to an variable whose type is the string class.
14.	C++ does not perform array bounds checking.
	([i] vs c.a+(i)

Multiple Choice (3 pts each)

- 15. The type of the literal string "Hello" is best described as CDNS+ CMOW *
 - a) *char[].
 - b) *string.
 - c) char *.
 - d) string *.
 - None of the above
- string & str = new string;
- 16. The statement cout << &num1; will output
 - a) the value stored in the variable called num1.
 - b) the string "&num1".
 - c) the number 1.
 - d) the memory address of the variable called num1.
 - e) None of the above
- 17. To declare an array that will store students' last names of up to 25 characters in length, which is an appropriate statement?
 - a) char lastName[25];
 - b) string lastName[25];
 - c) string lastName[24];
 - d char lastName[26];
 - en None of the above
- count for 100

- 18. An array can store a group of values, but the values must be
 - a) constants.
 - b) all the same data type.
 - c) numeric, not characters or strings.
 - d) declared at the time the array is created.
 - e) none of the above.
- 19. What are the values in the array after execution of the following code?

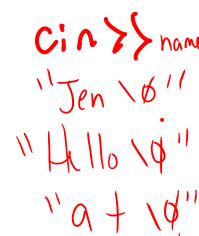
int a[4] =
$$\{3, 7, 6, 7\}$$
;
int i = 2;

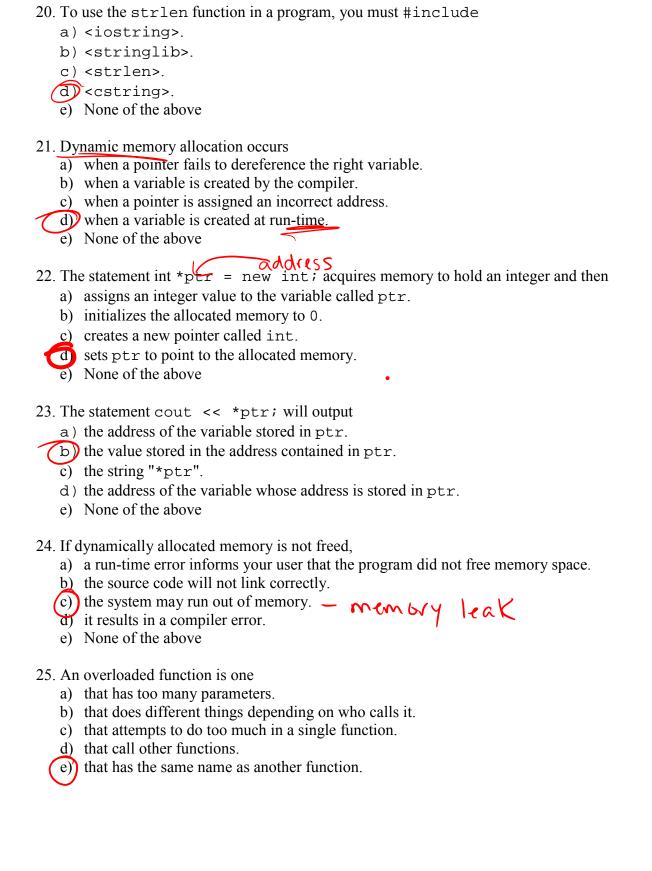
$$a[I] = I$$
, $a[i = 1] = a[i = 1]$

$$a[i + 1] = a[i + 1];$$

$$a[1] = 5$$
;

- a) 5, 3, 3, 6
- (b) 3, 5, 3, 7
 - c) 5, 7, 3, 7
 - d) 5, 7, 2, 1

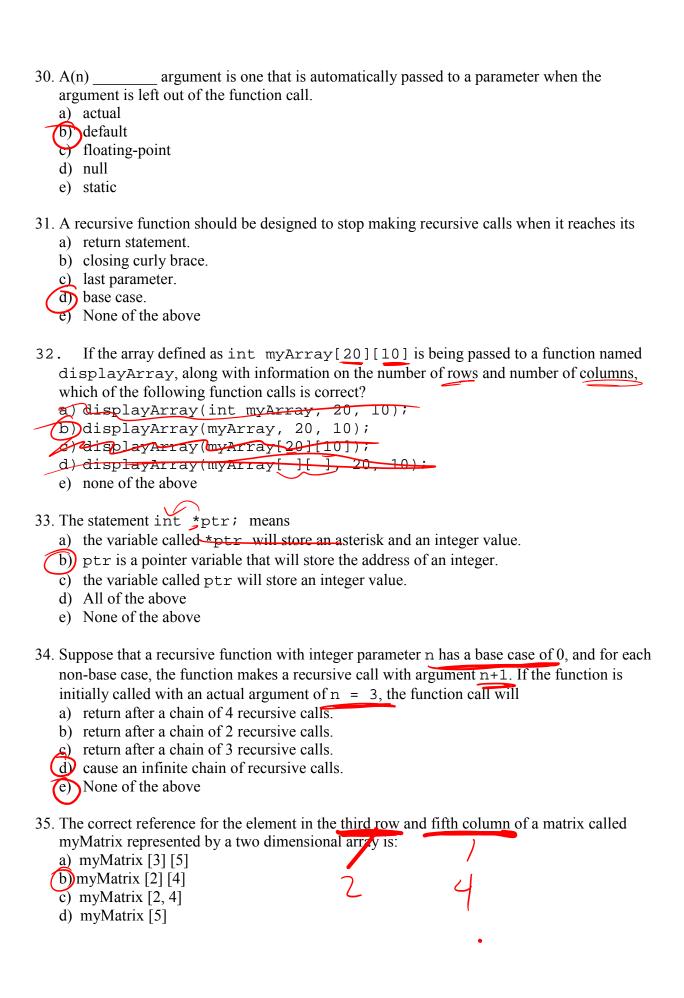




26. What is the value of pointer p after the following assignment? p = new char;a) 0 b) "" c) stack address d) heap address 27. When should a parameter be a reference parameter? a) When the parameter is carrying information into the function that does not have returned b) When the parameter is carrying information into the function that may be changed and the new value should be returned (c) When the information is to be returned from the function using the parameter. d) Both b and c 28. What is the output of this code, given the following function definition? int x = 5, y = 2; y = mixUp(x, y);cout << x; int mixUp (int &p, int t) //function definition return(p + 1 } a) 5 b) 6 (c) 10 d) 11 29. Given the function prototype and variable declarations, which of the following is a valid function call? void compute (int, float, char&, int&); // function prototype //variable declarations int x, y;

float p, q;
char r, s;

a) compute (x, 7.3, 'c', y); b) compute (y, p, s, x + y); c) compute (5, p + q, r, y); d) compute (x, s, r, 8);



- 36. What is the output of the following segment of code? int *p; p = new int;*p = 7;a) 0 (b) 7 c) there will be an error message d) we cannot tell because we do not know what memory address will be assigned to p 37. What is the value of b after the following function call? int b = 3; mystery (b); // function call **void** mystery (int &val) //function definition for (int c = 0; c < 5; c++) val += 2;} a) 2 b) 3 ch 13 ď) 15 38. What is the output of the following function call, given the function definition below?
 - int tester (int ii)

 if (n == 1)

 return 3;
 else

 return 2 * tester (n-1);

 a) 3
 b) 6
 c) 12
 d) 24

Extra Credit (2 pts each):

39. True(A)/False(B) Storage is allocated for a pointer and the data that it points to at the same time.

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40. What would be the result of the call doTask (5, 4), given the following definition?

int doTask (int a, int b)

{

if (a <= 2)

return 5;
else

return doTask(a-1, b-1) + a + b;
}
a) 5
b) 10
c) 17
d) 26
```

41. Which of the following is a valid assignment, given the following declarations?

```
float *s;
float *t:

a) s = 50.0;
b) t = 2000;
c) s = s * 2;
d) s = t;
```

42. What is the output of the following code given the function definition below?

```
string word = "Hello";
mystery (word):
cout << word!

void mystery (string)  // function definition
{
    int size = p.length ();
    for (int c = 0; c < size; c++)
        p.insert(0, "*");
}
a) Hello
b) *Hello
c) Hello*****
d) *****Hello
```

43. You are passing a two dimensional array, defined as below, to a function. What would be a correct function prototype? (ROWS and COLS are global constants.) int table [ROWS] [COLS];

- a) float calculate (int matrix [] [COLS], int rows);
- b) float calculate (int matrix [POWS][], introvs)
- c) float calculate (matrix [ROWS] [COLS], introws);
- d) float calculate (int matrix | ROWS | [], int cols)