



King Saud University

College of Computer and Information Sciences

Computer Science Department

	Course Code:	CSC 215
	Course Title:	Procedural Programming
	Semester:	1436/1437 Semester 1
	Midterm Exam	
Duration: 60 minutes		
Student Name:		
Student ID:		
Student Section No.		

Exercise 1: Name the correct answer (2pts each)

1. What is the only function all C programs must contain?
A. start()
B. system()
C. main()
D. program()
2. What punctuation is used to signal the beginning and end of code blocks?
A. { }
B. -> and <-
C. BEGIN and END
D. (and)
3. What punctuation ends most lines of C code?
A. .
B. ;
C. :
D. '
4. Which of the following is a correct comment?
A. */ Comments */
B. ** Comment **
C. /* Comment */
D. { Comment }
5. Which of the following is not a correct variable type?
A. float
B. real
C. int
D. double
6. Which of the following is the correct operator to compare two variables?
A. :=
B. =
C. equal
D. ==

7. Which of the following is the boolean operator for logical-and?
- A. &
 - B. &&
 - C. |
 - D. |&
8. Evaluate `!(1 && !(0 || 1))`.
- A. True
 - B. False
 - C. Unevaluatable
9. Which of the following shows the correct syntax for an if statement?
- A. `if expression`
 - B. `if { expression`
 - C. `if (expression)`
 - D. `expression if`
10. What is the final value of x when the code `int x; for(x=0; x<10; x++) {}` is run?
- A. 10
 - B. 9
 - C. 0
 - D. 1
11. When does the code block following `while(x<100)` execute?
- A. When x is less than one hundred
 - B. When x is greater than one hundred
 - C. When x is equal to one hundred
 - D. While it wishes
12. Which is not a loop structure?
- A. For
 - B. Do while
 - C. While
 - D. Repeat Until
13. How many times is a do while loop guaranteed to loop?
- A. 0
 - B. Infinitely
 - C. 1
 - D. Variable
14. Which is not a proper prototype?
- A. `int funct(char x, char y);`
 - B. `double funct(char x)`
 - C. `void funct();`
 - D. `char x();`
15. Which of the following is a valid function call (assuming the function exists)?
- A. `funct;`
 - B. `funct x, y;`
 - C. `funct();`
 - D. `int funct();`

16. Which of the following is a complete function?

- A. `int funct();`
- B. `int funct(int x) {return x=x+1;}`
- C. `void funct(int) { printf("Hello");`
- D. `void funct(x) { printf("Hello"); }`

17. Which follows the case statement?

- A. `:`
- B. `;`
- C. `-`
- D. A newline

18. What is required to avoid falling through from one case to the next?

- A. `end;`
- B. `break;`
- C. `Stop;`
- D. A semicolon.

19. What is the result of the following code?

```
int x=0;
switch(x)
{
    case 1: printf( "One" );
    case 0: printf( "Zero" );
    case 2: printf( "Hello World" );
}
```

- A. One
- B. Zero
- C. Hello World
- D. ZeroHello World

20. What does `break` do when encountered in a loop

- A. Exits the loop
- B. Exits the program
- C. Skips the remaining statements in the current iteration
- D. None of the above

21. Give a pointer to character called `ptr`, what is return by `sizeof(ptr)`

- A. 1
- B. 2
- C. 4
- D. Error

22. Which of the following is the proper declaration of a pointer?

- A. `int x;`
- B. `int &x;`
- C. `ptr x;`
- D. `int *x;`

23. Which of the following gives the memory address of integer variable `a`?

- A. `*a;`
- B. `a;`
- C. `&a;`
- D. `address(a);`

24. Which of the following gives the memory address of a variable pointed to by pointer a?
- A. a;
 - B. *a;
 - C. &a;
 - D. address(a);
25. Which of the following gives the value stored at the address pointed to by pointer a?
- A. a;
 - B. val(a);
 - C. *a;
 - D. &a;
26. Which of the following is the proper keyword to allocate memory in C?
- A. new
 - B. malloc
 - C. create
 - D. value
27. Which of the following is the proper keyword to deallocate memory?
- A. free
 - B. delete
 - C. clear
 - D. remove
28. Which of the following correctly declares an array?
- A. int anarray[10];
 - B. int anarray;
 - C. anarray{10};
 - D. array anarray[10];
29. What is the index number of the last element of an array with 29 elements?
- A. 29
 - B. 28
 - C. 0
 - D. Programmer-defined
30. Which of the following is a two-dimensional array?
- A. array anarray[20][20];
 - B. int anarray[20][20];
 - C. int array[20, 20];
 - D. char array[20];
31. Which of the following correctly accesses the seventh element stored in foo, an array with 100 elements?
- A. &foo[6];
 - B. * foo+6;
 - C. *(foo+6);
 - D. None of the above

32. Which of the following gives the memory address of the first element in array foo, an array with 100 elements?

- A. foo[0];
- B. foo;
- C. &foo;
- D. foo[1];

33. What character ends all strings?

- A. '.'
- B. ''
- C. '\0'
- D. '\n'

34. Which of the following functions returns the length of a string?

- A. strlen();
- B. size();
- C. length();
- D. strlen();

35. Which header file do you need to include to use typecasting?

- A. stdin.h
- B. ctype.h
- C. math.h
- D. None

36. Which is a valid typecast?

- A. a(char);
- B. char:a;
- C. (char)a;
- D. to(char, a);

37. Why can typecasting be dangerous?

- A. Some conversions are not defined, such as char to int.
- B. You might permanently change the value of the variable.
- C. You might temporarily lose part of the data - such as truncating a float when typecasting to an int.
- D. There are no dangers.

38. Which is a good use for typecasting?

- A. To allow division of two integers to return a decimal value.
- B. To allow your program to use nothing but integers.
- C. To change the return type of a function.
- D. To swap variables rapidly.

39. Which conversion is not possible?

- A. int to float
- B. float to int
- C. char to float
- D. All are possible

40. Which conversion truncates the value of the pointer variable?

- A. int pointer to float pointer
- B. float pointer to int pointer
- C. char pointer to float pointer
- D. None of the above

Exercise 2: Answer the following questions

1. Write the code to create an array called **arr** of 20 floats and dynamically allocate the memory to the elements of the array and initialize the values of **f** to zero. (4pts)

2. Write the code to resize the array **arr** from the previous question to hold 25 floats. (4pts)

3. Given the array **arr** from the previous question. What are the values of arr[0] and arr[23]. (3pts)

arr[0] = _____
Arr[23]= _____

4. Write the code to initialize the values of the array **arr** from the previous question to 0.1. Use a pointer to loop through the array. (4pts)

4. Write a **recursive** function called **factorial** that takes an integer **n** and returns n factorial (5pts)

