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. strsize();
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)