

**REGENT UNIVERSITY**  
COLLEGE OF SCIENCE AND TECHNOLOGY



**EXAMINATION PAPER**

**FIRST SEMESTER EXAMINATIONS**

**LEVEL 200 DECEMBER 2008**  
**MANAGEMENT/ECONOMICS WITH COMPUTING**

**COURSE TITLE: OBJECT ORIENTED**  
**PROGRAMMING (USING C++)**

**COURSE CODE: SICS 1523**

**TIME: TWO AND HALF HOURS**

**LECTURER: DAVID BOTWE**

**Please Read ALL Instructions**

**SECTION A: OBJECTIVE TEST**

**[30 Marks]**

1. All C++ statements must end with.....  
A. period                      B. comma  
C. semicolon                  D. closing parenthesis
2. All C++ programs must have a function called .....  
A. start()                      B. main()  
C. cout()                      D. hello()
3. Non-executing statements that provide documentation are called.....  
A. classes                      B. notes  
C. comments                  D. commands
4. After you write and save a C++ program file, you.....it  
A. interpret and then compile      B. compile and then execute  
C. compile and then resave          D. compile and then interpret
5. You save text files containing C++ source code using the file extension.....  
A. .txt                          B. .exe  
C. .cpp                          D. .src
6. Which of the following is not a primitive data type in the C++ programming language?  
A. boolean                      B. byte  
C. int                            D. text
7. Which of the following elements is not required in a variable declaration?  
A. a data type                      B. an identifier (or variable name)  
C. an assigned value                  D. a semicolon
8. The assignment operator in the C++ programming language is.....  
A. =                              B. ==  
C. :=                              D. ::
9. Which of the following values can you assign to a variable of type int?  
A. 0                              B. 98.6  
C. 'S'                              D. 5,000,000,000,000
10. Which of the following data types can store a value in the least amount of memory?  
A. Short                          B. long  
C. int                              D. byte
11. According to the rules of operator precedence, division always takes place prior to.....  
A. multiplication                      B. modulus  
C. subtraction                          D. answers a and b are correct
12. A boolean variable can hold .....  
A. any character                      B. any whole number  
C. any decimal number                  D. the values true or false
13. The "equal to" comparison operator is.....  
A. =                              B. ==  
C. !=                              D. !!
14. the value 137.68 can be stored in a variable of type.....  
A. int                              B. float  
C. long                              D. short
15. An escape sequence always begins with a(n).....  
A. 'e'                              B. forward slash  
C. backslash                          D. equal sign

16. A decision is based on a(n) .....expression

- A. boolean
- B. absolute
- C. definitive
- D. convoluted

17. The value of (4 > 7) is.....

- A. 4
- B. 7
- C. true
- D. false

18. What is the output of the following code segment?

```
t = 10;
if(t > 7){
    cout<<"AAA"<<endl;
}
else{
    cout<<"BBB"<<endl;
}
```

- A. AAA
- B. BBB
- C. AAA  
BBB
- D. nothing

19. Assuming a variable f has been initialized to 5, which of the following statements sets g to 0?

- A. if(f > 6 || f == 5) g = 0;
- B. if(f < 3 || f > 4 5) g = 0;
- C. if(f >= 0 || f < 2) g = 0;
- D. All of the above statements set g to 0.

20. Assuming a = 5 and b = 9, then the value of

a > 0 && b < 10 || b > 1 is.....

- A. 5
- B. 9
- C. true
- D. false

21. A structure that allows repeated execution of a block of statements is a.....

- A. cycle
- B. loop
- C. ring
- D. decision

22. What is the output of the following code?

```
int b = 1;
while(b < 4){
    cout<<b<<" ";
}
```

- A. 1
- B. 1 2 3
- C. 1 2 3 4
- D. 1 1 1 1 1 1...

23. What is the output of the following code?

```
int b = 1;
while(b < 4){
    cout<<b<<" ";
    b = b + 1;
}
```

- A. 1
- B. 1 2 3
- C. 1 2 3 4
- D. 1 1 1 1 1 1...

24. If total = 100 and amt = 200, then after the statement total += amt,

- .....
- A. total is equal to 200
- B. total is equal to 300
- C. amt is equal to 100
- D. amt is equal to 300

25. The statement

```
for(int a = 0; a < 5; a++) cout <<a<<" ";
prints.....
```

- A. 0 0 0 0 0
- B. 0 1 2 3 4
- C. 0 1 2 3 4 5
- D. nothing

26. The statement `for(int b = 1; b > 3; b++) cout <<b<<" "`;  
prints.....  
A. 1 1 1                      B. 1 2 3  
C. 1 2 3 4                    D. nothing
27. The statement `int value[34];` reserves memory for  
.....integers  
A. 0                              B. 33  
C. 34                             D. 35
28. If you declare an array as `int num[6];` the last element of the  
array is.....  
A. `num[0]`                      B. `num[1]`  
C. `num[5]`                      D. impossible to tell
29. If you declare an array as  
`int num[] = {101, 202, 303, 404, 505, 606};`  
then the array element `num[2]` contains the number.....  
A. 101                            B. 202  
C. 303                            D. impossible to tell
30. Assume an array is declared as `int num[4];`. Which of the  
following statements correctly assigns the value 100 to each element  
of the array?  
A. `for(int x = 0; x < 3; x++) num[x] = 100;`  
B. `for(int x = 0; x < 4; x++) num[x] = 100;`  
C. `for(int x = 1; x < 4; x++) num[x] = 100;`  
D. `for(int x = 1; x < 5; x++) num[x] = 100;`

**SECTION B [30 Marks]**

*Answer Question ONE and any other Question*

1. Write a C++ program to prepare a payroll for a Small Scale Enterprise given the following information:

Employee ID: ..... (Prompt the user for input)  
Employee Name: ..... (Prompt the user for input)  
Position: ..... (Prompt the user for input)  
Social Security Number: .....(Prompt the user for input)

**Basic Salary**..... (Prompt the user for input)  
**SSF = 5% of Basic Salary**

**Taxable Income = Basic Salary – SSF**

Income Tax is calculated as a percentage of the Taxable income using the following scale:

<u>Taxable Income (GH¢)</u>	<u>Income Tax</u>
Less than 20.00	Nil
Between 20.00 and 40.00	5%
Between 40.00 and 140.00	10%
Between 140.00 up to 800.00	17.5%
Exceeding 800.00	25%

Net Pay = Basic – SSF – Income Tax

Add Allowances:

Rent = 15% of Net Pay  
Fuel = 10% of Net Pay  
Risk = 5% of Net Pay  
Lunch = 5% of Net Pay

Less Deductions:

Welfare: ..... (Prompt the user for input)  
Insurance: ..... (Prompt the user for input)

Take Home Salary = Net Pay + Allowances – Deductions  
[20 marks]

2. Write a program that prompts a user to input a positive integer. It should then output a message indicating whether the number is a prime number. (Note: A number is prime if it has exactly two factors, i.e. 1 and itself)

[10 marks]

3. Write a C++ program to do the following:
- Declare an array called **alpha** of 15 elements of the type `int`
  - Fill the array by prompting the user to input the values
  - Find the sum of the elements in the array
  - Find the average of the elements in the array
  - Print the sum and average of the elements in the array

[10 marks]