



ANANDALAYA
Summative Assessment - 1
Class : XI

Subject : COMPUTER SCIENCE
Date : 19/09/2016

M.M : 70
Time : 3 Hours

General Instructions:

- (i) Programming Language C++
(ii) All questions are compulsory.

- Q.1 (2)
- (a) What do you mean by **OOPs** language? (2)
- (b) Write short note on the following (with suitable example) (2)
- i. **Inheritance** ii. **Encapsulation**
- (c) What do you understand by programming paradigm? What is procedural programming paradigm? (2)
- Q.2
- (a) What is the difference between a keyword & identifiers? (2)
- (b) What is call by **value** & call by **reference** of a function.? (2)
- (c) What is the difference between a **while** loop & **do while** loop? (2)
- (d) Which of the following are valid character constants in C++ ? (2)
- 'c', 'abc', "abc", my, 'main's', 'l, you', 'char'
- Q.3 (2)
- (a) Find out the errors ,if any in the following C++ statements: (2)
- i. `cout<<"a">>a` ii. `Cin>>y ;>>j` iii. `break=x*y`
iv. `b+c=d`
- (b) How are the following two statements different? (2)
- ```
char pcode = 75;
char pcode = 'K';
```
- (c) What are derived data types? Name the user defined data types in C++. (3)
- (d) Write a program in C++ to read a string, count its length, count the no of characters entered. (3)
- (e) What will be the output of the following code fragments: (4)
- |                                                     |                                                     |
|-----------------------------------------------------|-----------------------------------------------------|
| Version 1                                           | version 2                                           |
| <code>l=j=10</code>                                 | <code>l=j=10</code>                                 |
| <code>If (a&lt;100)</code>                          | <code>If (a&lt;100)</code>                          |
| <code>If (b&gt;50)</code>                           | <code>{ If (b&gt;50)</code>                         |
| <code>++l;</code>                                   | <code>++l;</code>                                   |
| <code>else</code>                                   | <code>}</code>                                      |
| <code>++j;</code>                                   | <code>else</code>                                   |
| <code>cout&lt;&lt;"j="&lt;&lt;j&lt;&lt;"\n";</code> | <code>++j;</code>                                   |
| <code>cout&lt;&lt;"j="&lt;&lt;j&lt;&lt;"\n";</code> | <code>cout&lt;&lt;"i="&lt;&lt;i&lt;&lt;"\n";</code> |
|                                                     | <code>cout&lt;&lt;"i="&lt;&lt;i&lt;&lt;"\n";</code> |
- If the input given is shown below:
1. a=30,b=30                      2. a=60,b=70
- Q.4 (4)
- (a) Evaluate the following C++ expressions where a, b, c are integers and d, fare floating point numbers. the value are a == 5, b = 3 and d = 1.5 : (4)
- (a) `f=a+b/a`                      (b) `c=d*a+b.`                      (c) `(a++)*d+a`  
(d) `f = (++ b)* b - a`                      (e) `c = a - (b ++)* (- - d)`
- (b) Construct function prototypes for descriptions given below: (4)
- Rarb( ) takes no arguments and has no return value.  
maan( ) takes a float argument and returns an int.  
sane( ) takes two double arguments and returns a double.  
sum( ) takes an int array and an int value and returns a long result.

- (c) Write a function to print the following series (accept the no of iteration from main and pass to a function **series()**) (5)  
 $1/1!+2/2!+3/3!.....n/n!$
- (d) State whether the following statements are TRUE or FALSE : (4)  
 (a) In procedure-oriented programming all data is shared by all functions.  
 (b) The main emphasis of procedure-oriented programming is on algorithms rather than on data,  
 (c) One of the striking features of OOP is division of program into objects that represent real world entities.  
 (d) Wrapping up of data of different types into a single unit is known as encapsulation.  
 (e) Object oriented programs are executed much faster than conventional programs,  
 (f) A subclass inherits all the properties of its base class and vice versa.

Q.5 Write a user defined function in C++ to display the sum of no of two dimensional array A [5][6] containing integers. (5)

(a) Write a user-defined function in C++ to display those elements of a two dimensional array T[4][4] which are divisible by 100. Assume the content of the array is already present and the function prototype is as follows:  
 void Showhundred(int T[4][4] ); (5)

(c) From a two-dimensional array A[4 x 4], write an algorithm to. prepare a one dimensional array B[16] that will have all the elements of A as if they are stored in row-major form. For example for the (5)

|    |    |    |    |
|----|----|----|----|
| 1  | 2  | 3  | 4  |
| 5  | 6  | 7  | 8  |
| 9  | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 |

the resultant array should be 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

(d) Write a user-defined function Upper-half( ) which takes a two dimensional array A, with size N rows and N columns as argument and point the upper half of the array. (5)

|   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3 | 1 | 5 | 0 | 2 | 3 | 1 | 5 | 0 |
| 7 | 1 | 5 | 3 | 1 | 1 | 5 | 3 | 1 |   |
| 2 | 5 | 7 | 8 | 1 | 7 | 8 | 1 |   |   |
| 0 | 1 | 5 | 0 | 1 | 0 | 1 |   |   |   |
| 3 | 4 | 9 | 1 | 5 |   |   | 5 |   |   |

(e) Write a program to calculate income tax of a group of 10 employees from the following data: (5)

total income  
 life insurance premiums (LIC)  
 unit-linked insurance plan (ULIP)  
 provident fund (PF)  
 post-office cumulative time deposit (CTD)  
 national saving certificates (NSC)  
 Assume the following norms for the calculation of income tax:

a. Tax  
 Total income slab rates of income tax  
 upto 35000 Nil  
 from 35001 to 60000 20%  
 from 60001 to 120000 30%  
 120000 and above 40%

b Exemptions .  
 Contributions to LIC, GPF, PPF, ULIP, NSC, CTD etc. are exempt from paying income tax subject to a maximum of Rs. 12000 is admissible.