Programming in C++: Assignment Week 1

Total Marks : 20

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February 24, 2017

Question 1

Which special symbol allowed in a variable name? *Mark 1*

a) !

b) |

c) *

d) _

Answer: d)
Explanation: As per the Syntax of the language. Refer Slides

Question 2

Which of the following are unary operators in C? *Mark 1*

a) ?:

b) ++

c) *=

d) sizeof()

Answer: b) d)
Explanation: As per the Syntax of the language. Refer Slides

Question 3

Which of the following declarations are correct? *Mark 1*

a) struct mystruct {int a;};

b) struct {int a;}

c) struct mystruct {int a;}

d) struct mystruct int a;

Answer: a)
Explanation: As per the Syntax of the language. Refer Slides.

Question 4

What will the function *Sum* return? *Mark 1*

```
void sum(int x, int y) {
    x++; y++;
return (y);
}
```

a) The incremented value of y

b) The incremented value of y; the value of x is incremented but not returned

c) Compilation Error: return value type does not match the function type

d) Does not incremented value of y

Answer: c)
Explanation: The return type of the function is void, hence an integer value cannot be returned.

Question 5

What value will be printed for `data.c`? *Marks 2*

```
#include<stdio.h>
#include <string.h>

int main() {
    union Data {
       int i;
       unsigned char c;
} data;
    data.c ='C';
    data.i = 89;
    printf( "%c\n", data.c);
    return 0;
}
```

a) C

b) Y: ASCII 89

c) G

d) C89

Answer: b)
Explanation: When %c is used for printing an integer value, conversion to the equivalent ASCII

Question 6

What is the output of the above program? *Marks 2*

```
#include <stdio.h>
void foo( int[] );
int main() {
    int myarray[4] = {1, 2, 3, 0};
    foo(myarray);
    printf("%d ", myarray[0]);
}
void foo(int p[4]){
   int k = 34;
   p = &k;
   printf("%d ", p[0]);
}
```

a) 1 2

b) 1 3

c) Will always output 1

d) 34 1

Answer: d)
Explanation: The base pointer of the array is used to point to an integer 34. In main, the array is accesssed directly to print the 1st element.

Question 7

What is the output of the following program? *Marks 2*

```
#include <stdio.h>
#define func(x, y) x / y + x
int main() {
    int i = -6, j = 3;
    printf("%d\n",func(i + j, 3));
    return 0;
 }
```

a) divide by zero error

b) -4

c) -8

d) 3

Answer: c)
Explanation: x/y+x replaced by i + j/3 + i + j i.e (-6 + 3/3 -6 +3) = (-6 + 1 -6 +3) = -8

Question 8

What will be the output of the following program? *Marks 2*

```
#include <stdio.h>
int sum(int a, int b, int c) {
    return a + b + c / 2;
}
void main() {
    int (*function_pointer)(int, int, int);
    function_pointer  =  sum;
    printf("%d", function_pointer(2, 3, 4));
}
```

a) Compilation Error: Error in function call

b) 7

c) 4.5

d) 5.5

Answer: b)
Explanation: *function_pointer* is a pointer defined for any function with 3 integer parameters and integer return type. It points to function sum and returns the result of the sum.

Question 9

Fill in the blank to concatenate strings `str1` and `str2` to form `str3`? *Marks 2*

```
#include <iostream>
#include <string>
using namespace std;

int main(void) {
    string str1 = "I ";
    string str2 = "Travel";

    string str3 = ________________________;
    cout << str3;
    return 0;
}
Output: I Travel
```

a) `str1+str2`

b) `strcat(str1,str2);`

c) `strcat(strcpy(str3,str1),str2);`

d) `str1.append(str2)`

Answer: a) `str1+str2` and d) `str1.append(str2)`
Explanation: str1 and str 2 are two string type variables, operations possible for concatenation are str1+str2 (String is a stl, hence has + operator overloaded) and str1.append(str2) to append strings.

Question 10

What will be the output of the following program? *Marks 2*

```
#include <iostream>
#include <algorithm>
using namespace std;
bool srt (int i, int j) {
    return (i < j);
}
int main() {
    int data[] = {52, 76, 19, 5, 10, 100, 56, 98, 17};
    sort (data + 1, data + 4, srt);
    for (int i = 0; i < 9; i++)
        cout << data[i] << " ";
    return 0;
}
```

a) 52 5 19 76 10 100 56 98 17

b) 52 76 19 10 5 100 56 98 17

c) 76 5 10 19 76 100 56 98 17

d) 76 5 10 19 76

Answer: a)
Explanation: The whole array is not passed for sorting, only from index 1 (data + 1, i.e 0 + 1) to index 4 (data + 4, i.e 0 + 4), i. e 3 elements, 76, 19, 5

Question 11

What will be the output of the following program? *Marks 2*

```
#include<iostream>
#include<string.h>
#include<stack>
using namespace std;
int main() {
    char str[19]= "Programming";
    stack<char> s;
    for(int i = 0; i < strlen(str); i++)
        s.push(str[i]);
    for(int i = 0; i < strlen(str) - 1; i++) {
        cout << s.top();
        s.pop();
    }
    return 0;
}
```

a) rogramming

b) ogramming

c) gnimmargor

d) gnigormmar

Answer: c)
Explanation: When programming pushed to stack, the element on the top is g (gnimmargorp) , which is displayed and then popped. Continues till length of str - 1, hence p not printed at the end.

Question 12

Fill up the blanks for A# and B# below: *Marks 2*

```
#include <iostream>
#include <vector>
using namespace std;
int main() {
    cout << "Enter the no. of elements: ";
    int count, j, sum=0;
    cin >> count;
    __________________ A# // Declare with Default size
    __________________ B# // Change the size to the required amount
    for(int i = 0; i < arr.size(); i++) {
        arr[i] = i;
        sum + = arr[i];
    }
    cout << "Array Sum: " << sum << endl;
    return 0;
}
```

a) A#: vector <int> arr(count);
   B#: arr.resize(count);

b) A#: vector <int> arr(count);
   B#: arr.size(count);

c) A#: vector <int> arr;
   B#: arr.size(count);

d) A#: vector <int> arr;
   B#: arr.resize(count);

Answer: d)
Explanation: As per syntax, using resize operator