

14
[This question paper contains 8 printed pages.]

Your Roll No.....

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Sr. No. of Question Paper : 1133

Unique Paper Code : 2342571101

Name of the Paper : Programming Fundamentals
Using C++

Name of the Course : B.A. (Programme) Computer
Applications

Semester / Year : I / 2022

Duration : 3 Hours

Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Paper has **two** sections. All the questions in **Section A** are compulsory.
3. Answer any **four** questions from **Section B**.

Section A

1. (a) How are comments inserted in a C++ program?
Explain with suitable example. (2)

P.T.O.

- (b) What is the meaning of void in the following function declaration statement?

```
void myfun(void);
```

 (2)

- (c) Find the error(s) if any, in the following statements and correct them.

```
long float x;  
int marks=three;  
int &number=100;  
int public=400;
```

 (4)

- (d) Explain any three data types used in C++ with suitable example.
- (6)

- (e) Explain with examples different access specifiers used in a class in C++.
- (4)

- (f) What will be the value of e after executing the following code segment?

```
(i) #include<iostream>  
using namespace std;  
int main()  
{  
    int a=3;  
    int b=4;  
    int c=(a%b)*6;  
    int d=c/b;
```

```
float e=(a+b+c+d)/4;  
cout<<"value of e is :"<<e<<endl;  
return 0;  
}
```

```
(ii) #include<iostream>  
using namespace std;  
int main()  
{  
int a = 20;  
int &n = a;  
n=a++;  
a=n++;  
cout<<a <<" "<<n<<endl;  
return 0;  
}
```

(3+3)

(g) Differentiate between break and continue statement using suitable examples. (2)

(h) Explain the concept of Data Hiding and Data Abstraction with respect to Object Oriented programming. (4)

Section B

2. (a) Write a C++ program to input a number from the user and print the reverse of the number. (5)

P.T.O.

(b) Write a C++ program to print the following output:

```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

(5)

(c) Write the output of the following program

```
int main()
{
    int ans = 27;
    ans += 10;
    cout << ans << " ";
    ans -= 7;
    cout << ans << " ";
    ans *= 2;
    cout << ans << " ";
    ans /= 3;
    cout << ans << " ";
    ans %= 3;
    cout << ans << endl;
    return 0;
}
```

(5)

3. (a) How many times the following do..while loop will execute. Also write the final values of x and y.

```
x=5;
y=20;
do
x=x+2;
while(x>=y);
cout<<x<<" "<<y<<endl; (5)
```

- (b) Write a program to input a character from the user and check whether it is a vowel or not using switch case. (5)
- (c) A video library rents new videos for Rs. 75 a day and old movies for Rs. 60 a day. Write a C++ program to calculate the total charge for a customer's video rentals. Input the number of each type of videos rented by the customer and output the total cost. (5)
4. (a) Write a function in C++ that takes an integer as an argument and finds the sum of all integers up to that number. (5)

- (b) Write the elements of the array after execution of the following code:

```
arr[0]=5
for(int i=1;i<6;i++)
{
```

```
arr[i]=i*i+5;  
if(i>2)  
arr[i]=2*arr[i]-arr[i-1];  
}
```

(5)

- (c) Identify the type of the following program elements.

```
myfun()  
'z'  
3.14  
salary  
sales[5]
```

(5)

5. (a) Write a C++ program to print the sum of odd numbers between 1 to 50 using a while loop.

(5)

- (b) What will be the output of the following code

```
int x, y;  
int* p = &x;  
int* q = &y;  
x = 35; y = 46;  
p = q;  
*p = 78;  
cout<< x << " " << y.<< endl;  
cout<< *p << " " << *q << endl;
```

(5)

- (c) Write a C++ program to create an array Studentmarks. Input total marks for 5 students and calculate the average marks of all the students. (5)

6. (a) Write a program to create a class Arithmetic with private data member num1 and num2. Add the following public member functions A default constructor

- (i) A constructor with two arguments
- (ii) A function that computes the sum
- (iii) A function that displays the sum
- (iv) Show how these functions will be called from the main function. (10)

(b) Write a statement to

- (i) use a conditional operator to set ticket to 1 if speed is greater than 55, and to 0 otherwise.
- (ii) use a logical operator that is true if limit is 55 and speed is greater than 55.
- (iii) check if salary is greater than 50000 or age is less than 60.

- (iv) Set an integer constant to a value of 5.
- (v) initialize an array of type double with 5 values. (5)

7. (a) A company decides to give bonus to all its employees. A 5% bonus on salary is given to the male workers and 10% on salary to female workers. Write a C++ program to enter the salary and the gender of the employee. If the salary is less than 10,000 then the employee gets an extra 2% bonus on salary. Calculate the bonus that has to be given to the employee and display the salary that the employee will get. (5)

(b) Differentiate between do..while and while loops with the help of an example. (5)

(c) Identify invalid variable names and correct them.

(i) A123

(ii) myvar

(iii) ABC001

(iv) 11myrollno

(v) &xyz

(5)

(1000)