Your Roll No. : ....

Sl. No. of Q. Paper : **7284**

Unique Paper Code : 32345102

Name of the Course : **Computer Science : Generic Elective for Honours**

Name/Title of the Paper: (G) Introduction to Programming

Semester : I

Time : 3 Hours

Maximum Marks : 75

Instructions for Candidates :

(a) Write your Roll No. on the top immediately on receipt of this question paper.

(b) Question **No. 1** is compulsory.

(c) Attempt any **FIVE** questions out of **Q2** to **Q8**.

(d) Parts of a question must be answered together.

(Note: Please ignore any differences in font used for single and double quotes in the Question paper)

P.T.O.

1. (a) What would the following *expressions* evaluate to : 5

(i) 4 + 5 * 6 + 2   *36*

(ii) (21 == 22) ? 5 : 6   *6*

(iii) 5 + 7 % 2   *6*

(iv) 12 % 3   *0*

(v) 1 & 0   *0*

(b) What would be the output of the following C++ code snippets : 2×3=6

(i) for(int i=1; i<=20; i++)
if (i % 2==0) cout << i << " ";   *even nos*

6 8 10 12 14 16 18 20

(ii) for (int i=1; ;)
{
    cout << i << " ";
    if (i == 64)
        break;
    i*=2;
}

2 4 8 16 32 64

(iii) char ch = 'e' ;
switch(ch)
{
    case 'a' :

case 'e' :
case 'i' :
case 'o' :
case 'u' : cout << " Vowel " << end1;
default: cout << " Consonant " << end1;

(c) Rewrite the following code segments with the help of a do-while loop : 2+2=4

1 condition
do while   *+1 loop*

(i) for (int i=1; i <=20; ++i)
cout << "\n" << i;

(ii) char ch= 'y' ;
int i=1;
while (ch == 'y')
{
    cout << i*i*i ;
    cout << "Pls Enter y if you wish to continue." ;
    i++;
    cin >> ch ;
}

(d) Write a C++ program to read twenty-five numbers into an array and display the number of positive and number of negative integers. 5

array decl – 1
array read – @ 1   3
logic
— 3

2

this->val = obj.val;
} };

12

array read - ?
dgg & p
2 ①

(e) Write a C++ program to read the marks obtained by a student in five different subjects, find out the aggregate marks and percentage marks obtained by the student. Assume that the maximum marks that can be obtained by a student in each subject is 100.

5

2. (a) What would be the output of the following C++ programs ?

2+3=5

(i)
```
int main( )
{
    int num[26], temp ;
    num[0] = 100 ; num[25] = 200 ;
    temp = num [25]; num [25] = num [0];
    num [0] = temp;
    cout << num[0] << " "<< num[25] ;
}
```

00 100 ,

(ii)
```
int main( )
{
    int i = 45, c;
    c = check (i);
    cout << c ;
}
```

---

int check (int ch)
```
{
    if (ch>= 45)
        return(100) ;
    else
        return(100 * 100) ;
}
```

এই জে output

100

(b) Write a C++ Program to display the following pattern on the output screen. The number of lines should be taken as an input from the user.

5

%%%% @

%%% @ @

%% @ @ @

% @ @ @ @

@ @ @ @ @

3. (a) What would be the output of the following C++ program ?

2

```
int main( )
{
```

```
int a, b ;

a = -3 - - 3 ;

b = ++a + a++ ;

cout << " a = " << a << " b =" << b ;
}
```

1+3

(b) Write a while loop to display the numbers divisible by 3 between 100 and 1000.   4

(c) Write a C++ function that takes an input parameter x and returns its cube.   4

4. (a) Declare a class Cuboid in C++ having three data members: length, width and height.   2

(i) Define a default constructor for this class.   1

(ii) Create an object of this class and display its volume.   2

(b) Write a C++ function sum Series that accepts two inputs x and n, and finds the sum of first n terms of series :   5

$$1 - \frac{x}{3} + \frac{x}{5} - \frac{x}{7} + \ldots$$

6

5. (a) Suggest an appropriate data type for the following :   4

(i) Circumference of a circle float/double

(ii) The number of wheels in a vehicle int

(iii) Designation of a person char

(iv) PAN number like AAHPG4523G of a char person

(b) Declare a structure containing cricketer's Id Number, his age, number of test matches int that he has played and the average runs that he has scored in each test match. Write a program that accepts as input the information of one such cricketer and displays it.   6

6. (a) Find out the error in the following C++ statements :   4

(i) char ch = "temp" ;

(ii) int line count =2 ;

(iii) cout << "a =" << a << "b ="b ;

(iv) int b == 3;

(b) Write a function in C++ that takes a number as input and returns the sum of its digits.   6

7. (a) Give one example of each of the single line and multiple line Comments.   2

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(b) Which keywords are used to perform the following functions in C++ :   2

(i) Exit from the current iteration of loop

(ii) Exit from the program

(c) Write a function called **largestNum( )** that finds the largest number from an array of 10 integers.   6

8. (a) Write logical expressions to represent each of the following conditions :   4

(i) **score** is greater than 60 but less than or equal to 70

(ii) **ch** is either lowercase or uppercase letter 'y'

(iii) **n** is an odd number between 0 and 9

(iv) **x** is a vowel

(b) Why is **iostream** file required in a C++ program ? Give the syntax for the usage of this file in a C++ program.   2

(c) Write a C++ function to check whether a given number is an Armstrong number. An Armstrong number is a number the sum of cubes of whose digits is equal to the number itself.

(For example, 135 is an Armstrong number as $135 = 1^3 + 3^3 + 5^3$)   4

1800

8