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

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

(iii) 5 + 7 % 2

(iv) 12 % 3

(v) 1 & 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 << " ";

(ii) for (int i=1; ;)

    {

    cout << i << " ";

    if (i == 64)

      break;

    i*=2;

    }

(iii) char ch = 'e' ;

    switch(ch)

    {

    case 'a' :

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(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)
```cpp
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] ;
}
```

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

4

```
int a, b ;
a = -3 - - 3 ;
b = ++a + a++ ;
cout << " a = " << a << " b =" << b ;
}
```

(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.

   (i)   Define a default constructor for this class.   2

   (ii) Create an object of this class and display its volume.   1

   (b) Write a C++ function sum Series that accepts two inputs x and n, and finds the sum of first n terms of series :
   $$1 - \frac{x}{3} + \frac{x}{5} - \frac{x}{7} + \dots$$ 5

6

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

   (i)   Circumference of a circle

   (ii) The number of wheels in a vehicle

   (iii) Designation of a person

   (iv) PAN number like AAHPG4523G of a person

   (b) Declare a structure containing cricketer's Id Number, his age, number of test matches 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

(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

8

1800