Maulana Abul Kalam Azad University
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Utech

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : BCA-103

INTRODUCTION TO PROGRAMMING

Time Allotted : 3 Hours　　　　　　　　*Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1.　Choose the correct alternatives for the following :

　　　　　　　　　　　　　　　　　　　$10 \times 1 = 10$

　i)　In *C*, sizeof is

　　　a)　an operator

　　　b)　a function

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　　　c)　a macro

　　　d)　none of these.

　ii)　Which of the following is *not* a logical operator ?

　　　a)　&　　　　　　　　b)　& &

　　　c)　||　　　　　　　　d)　!

　　　　　　　　　　　　　　　　　[Turn over

iii) The keyword used to transfer control from a function back to the calling function is

a) switch   b) goto

c) exit   d) return.

iv) How many times will the loop be executed ?

```
for ( i = 1 ; i < = 10 ; i ++ )
{
        printf ( "\Hello" ) ;
        i + = 3 ;
}
```

a) 10   b) 4

c) 3   d) none of these.

v) When both global and local variables have the same name

a) local variable will be accessed

b) global variable will be accessed

c) compilation error will occur

d) none of these.

vi) Array passed as an argument to a function is interpreted as

a) maximum number of elements that the array can hold

b) value of the first element of the array

c) address of the first element of the array

d) none of these.

vii) What will be the output for the following program ?

```
main( )
{
    int i;
    for ( i = 0 ; i < 4 ; ++ i ) ;
    printf ( "%d", i ) ;
}
```

a) Compilation error   b) 1 2 3 4

c) 0 1 2 3   d) 4.

viii) How many times will be the loop be executed ?

```
x = 500 ;
while ( x < = 500 )
{
    x = x - 600 ;
    if ( x < 0 )
    break ;
}
```

a) 0   b) 1

c) 500   d) 100.

ix) Which of the following operators accepts only integer operand ?

a) +   b) *

c) /   d) %

x) What should be the correct output of the following program ?

```
main( )
{
    int k, num = 30 ;
    k = (num > 5 ? (num < 10 ? 100 : 200) : 500 ) ;
    printf ("%d %d", num, k ) ;
}
```

a) 200 30   b) 30 100

c) 30 200   d) 30 500.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. Explain the storage classes available in C. What do you mean by scope of the variable ?   4 + 1

3. Define loop. Explain different types of loops available in C with suitable examples.   1 + 4

4. What do you mean by call by value & call by reference ? Explain with examples.

5. In an organization, 55% of Basic Salary is given as DA while HRA is 15% of Basic Salary. PF is deducted at the rate of 12.5% of Gross Salary. Write a C program to calculate Net Salary. [Gross Salary = Basic + DA + HRA and Net Salary = Gross Salary – PF]

6. Write C code to print following figure for *n* no. of lines :

```
            1
          2   3
        4   5   6
      7   8   9   10
   11  12  13  14  15
   ................
```

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) Define array. Explain different types of array in detail.

   b) State and explain various types of standard function with example.

   c) State and explain different phases used in user defined function. $5 + 5 + 5$

8. a) Explain function with return and function with arguments with example.

   b) State and explain different types of string functions with example.

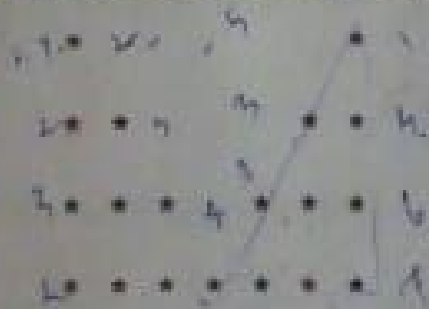   c) Write a program to check a number is palindrome or not.
   $$5 + 5 + 5$$

9. a) Explain the following using general syntax and example :

   i) if

   ii) if-else

   iii) nested if-else.

   b) Write a C language program to compute following series :

   $$G = 1 + x^3/3! + x^5/5! + x^7/7! + \ldots \text{ up to } n \text{ terms.}$$

   $$8 + 7$$

10. a) Explain the following :

    i) while

    ii) do-while

    iii) for.

    b) Write the pattern program given below :

    1 *

    * * *

    * * * * *

    * * * * * * *

    $$8 + 7$$

11. a) What is function ?

   b) What do you mean by the following ?

      i) Function declaration

      ii) Function calling

      iii) Function definition.

   c) When is it necessary to declare prototype of a function ?

   d) Write a program to arrange a group of numbers into positive and negative numbers.   2 + 3 + 3 + 7

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