



MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : CS-201

BASIC COMPUTATION & PRINCIPLES OF COMPUTER 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.*

Answer as per instructions.

Group - A

(Multiple Choice Type Questions)

I. Choose the correct alternatives for any ten of the following:

[1x10=10]

- (i) In hexadecimal number system, F is equivalent to the number in decimal
 - (a) 10
 - (b) 12
 - (c) 16
 - (d) 15
- (ii) Which operator operate upon integer and character but not upon float?
 - (a) Logical Operator
 - (b) Arithmetic Operator
 - (c) Bitwise Operator
 - (d) Conditional Operator
- (iii) ALU is part of a
 - (a) Memory
 - (b) CPU
 - (c) Input device
 - (d) Output device
- (iv) Operating System is a
 - (a) System software
 - (b) Application software
 - (c) Firmware
 - (d) None of these
- (v) In Octal number system, base is
 - (a) 4
 - (b) 8
 - (c) 16
 - (d) 10

- (vi) First generation computers used _____ as an output device
 (a) Printer (b) Monitor
 (c) Mouse (d) Punch-card

(vii) The output of the following code is

```
for (i=1;i<=5;i++)
{
    if(i%2)
    {
        continue;
    }
    printf("%d",i);
}
```


 (a) 1 2 3 4 5 (b) 1 3 5
 (c) 2 4 (d) None of these

(viii) Which of the following is conditional operator?
 (a) ?: (b) if
 (c) < (d) &&

(ix) The output of the following code is

```
int i=6
clrscr();
printf("%d%d%d",i, i++, ++i);
```


 (a) 8.8.7 (b) 8.6.6
 (c) 7.8.8 (d) 8.7.7

(x) In the _____ code, each decimal digit is represented by a binary code
 (a) hexadecimal number (b) decimal number
 (c) binary coded decimal (d) octal number

(xi) Which one is the right output?

```
char a[50]={"computer"};
printf("%d", strlen(a));
```


 (a) 9 (b) 10
 (c) 8 (d) 14

Group - B

(Short Answer Type Questions)

Answer any three of the following:

503-16

2. (a) Write down the basic characteristics of an algorithm.
(b) Draw a flowchart to find the sum of all integers ranging from 100 to 300 which are divisible by 5.

- 3.** Write difference between
 (i) do-while and while statement
 (ii) Compiler and Interpreter +2=
- 4.** Write a program to print the following Fibonacci series:
 1 1 2 3 5 8
 What is function prototype? 4+1=5
- 5.** What is macro? Write a C program to illustrate the function of macro. What is pointer arithmetic? 3+2=5
- 6.** (a) Find out the errors of this program and write the correct program.

```
#include<stdio.h>
main()
{
    int t, int p;
    float, si;
    printf ("Enter the value of t,p,r=");
    scanf ("%d%d%f,&t&p&r");
    si=(p*t*r)/100;
    printf ("value of si=");
}
```
- (b) What are the advantages and disadvantages of machine level language? 2+3=5
- 7.** What is the difference between calloc() and malloc()? What is void pointer? 3+2=5

Group - C**(Long Answer Type Questions)****Answer any three of the following:****15x3=45**

- 8.** Write a program using procedures / functions to create a dynamic array of integers given its size, then fill it with random numbers in the range 100 – 10000, then print it and then check whether a given integer in the same range is there in the array.
- 9.** Write a program to convert an integer in the range 1– 1000 to Roman numerals where I=1, V=5, X=10, L=50, C=100, D=500 and M=1000 and print it.
- 10.** (a) Write a program to convert a decimal number into binary using appropriate assumptions.
 (b) Write a program to check whether a number is prime with as few iterations as possible. 8+7=15
- 11.** Write a program to calculate $\sin(x)$ for $x = 0, 15, 30 \dots, 360$ degrees with an accuracy of 10^{-6} .
- 12.** Modeling complex number/variable as a structure, write a program to add and print the result of two complex variables.

13. Write short notes on any three:

- (a) Firmware
 - (b) Pre-processor
 - (c) Operating system
 - (d) Binary numbers
 - (e) ROM
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