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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)

1. Choose the correct alternatives for *any ten* of the following: 1×10=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

Turn Over

(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 of four bit

    (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: 5×3=15

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 500 which are divisible by 5

                            2+3=5

2

3. Write difference between
   (i) do-while and while statement
   (ii) Compiler and Interpreter

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;
    floatr,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: 15×3=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 point 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 ...., 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*: 5×3=15

    (a) Firmware

    (b) Pre-processor

    (c) Operating system

    (d) Binary numbers

    (e) ROM