53 (CS 101) INCP

2013

(May)

INTRODUCTION TO COMPUTER PROGRAMMING

Paper : CS 101

Full Marks : 100

Pass Marks : 30

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. Predict the output or error(s) for the following. (Support your answer with proper explanation). 5×4=20

(a)
```
void main() {
        int digit = 0 ;
        while (digit <=9)
          printf("%d\n" , digit++);
        }
```

(b)
```
void main () {
int C[] ={2·8, 3·4, 4, 6·7, 5};
int j, *p=C,  *q=C;
  for (j=0; j<5; j++){
        printf ("%d", *C);
        ++q;
       }
  for (j=0; j<5; j++){
        printf("%d", *p);
        ++p;
      }
     }
```

(c)
```
void main () {
char p[20];
char *S = "string";
int length = strlen(s);
  for (i=0 ; i<length ; i++)
    p[i] = S [length–i];
  printf ("%S", p);
}
```

(d)
```
void swap (int a, int b);
  void main () {
     int a = 6, b=10;
     swap (a, b);
     prinf("a is %d, b is %d", a,b);
   }
```

```
void swap (int a, int b)
    {
      int temp ;
      temp = a;
      a = b;
      b = temp ;
    }
```

(e)

```
int solve (int a, int b, int r) ;
  void main( ) {
    int x, p=8, q=15, r=6;
        x = solve (p, q, r);
    printf ("x=%d, p=%d, q=%d", p, q, r);
  }
```

2. *(a)* What are the different kinds of decision statements available in 'C' ? 10

(b) Create a structure to specify data on students given below : 10

Roll number, Name, department

Assume that there are not more than 60 students in the college.
Write a function to print the data of a student whose roll number is given.

3. *(a)* What are the actual and formal parameters of a function ? 5

(b) What are bitwise operators available in 'C' ? 5

(c) Write a C-program to count the number of vowels in a given string. 10

4. (a) How can we pass pointers to a function ? 5

(b) Write a complete C program that performs the following : 15

(i) Define an array called grades of size 20 and type int.

(ii) Read 20 different values inside the array using scanf. The reading process should be done using loop. The values should be in the range of 0 to 100 inclusive.

(iii) Calculate the average of the grades

(iv) Calculate the highest grade

5. Distinguish between the following : 5×4=20

(a) Automatic and static variables

(b) Global and local variables

(c) Primary and secondary memory

(d) do...while and while loops

6. (a) Draw the flow chart to print the numbers in between 1 and 100 that are divisible by 7. 5

(b) Find the following : 2.5+2.5=5

(i) decimal equivalent of the octal number $(344)_8$

(ii) binary equivalent of the hexadecimal number $(100 \cdot AF)_{16}$

(c) Write a C program to evaluate the following series : 10

$S = 1 - 3^2 + 5^3 - 7^4 + \ldots\ldots\ldots$ upto n terms.

7. (a) What is a computer ? Give a brief description of generation of computers. 10

(b) Write a C program to find the smallest element of an array using pointers. 10
