Code: AC-05 / AT-05

Time: 3 Hours

Subject: PROGRAMMING & PROBLEM

**JUNE 2007** 

SOLVING THROUGH 'C' Max. Marks: 100

NOTE: There are 9 Questions in all.

• Question 1 is compulsory and carries 20 marks. Answer to Q. 1. must be written in the space provided for it in the answer book supplied and nowhere else.

- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

## Q.1 Choose the correct or best alternative in the following:

(2x10)

a. Which amongst the following expression uses bitwise operator?

(A) a++

**(B)** !a>5

**(C)** a|b

**(D)** a!=b

b. The output of the following program is

```
main()
{ float y;
    y=198.7361;
    printf("%7.2f", y);
}
```

- (A) 1 9 8 . 7 3 6
- **(B)** 1 9 8 . 7 3
- (C) 1 9 8 . 7 4
- **(D)** 1 9 8 . 7 4

c. Which is not dynamic memory allocation function?

(A) malloc

(B) free

(C) alloc

(D) calloc

d. Which header file is used for screen handling function:-

**(A)** IO.H

(B) STDLIB.H

(C) CONIO.H

(D) STDIO.H

e. Choose the directive that is used to remove previously defined definition of the macro name that follows it -

(A) # remdef

(B) # pragma

**(C)** # undef

(D) # define

f. The output of the following is

(A) 'a'

**(B)** a

**(C)** 97

- **(D)** None of the above
- g. Consider the following statement

If q=7.2, r=20, j=3, k=2

The value of a and p is

(A) a=1.5, p=3.6

**(B)** a=2, p=3

(C) a=1.5, p=4

- **(D)** a=1, p=3
- h. Choose the function that returns remainder of x/y -
  - (A) remainder()

**(B)** mod()

(C) modulus()

- **(D)** rem()
- i. What is the output of following program:-

If the address of q is 2801

and p is 2600

**(A)** 2801

**(B)** 176

**(D)** 2600

- **(D)** None of the above
- j. Consider the following statements-

$$x = 5;$$
  
 $y = x > 3 ? 10 : 20;$ 

The value of y is

**(A)** 10

**(B)** 20

**(C)** 5

**(D)** 3

Answer any FIVE Questions out of EIGHT Questions. Each question carries 16 marks.

| Q.2         | a. Explain various steps for analysing an algorithm.  | (6)                 |
|-------------|---|---------------------|
|             | b. What are Translators? Explain its various types.   | (3)                 |
|             | c. Design an algorithm to generate all the primes in the first $n$ positive integers.   | (7)                 |
| Q.3         | a. Explain various classes of datatypes of C  | (4)                 |
|             | b. What are escape sequences characters? List any six of them.  | (4)                 |
|             | c. Write a C program to calculate the average of a set of $N$ numbers.  | (8)                 |
| Q.4         | a. Compare the use of switch statement with the use of nested if-else statement.  | (6)                 |
|             | b. What do you mean by underflow and overflow of data.  | (2)                 |
|             | c. Write a C program to multiply two matrices (maximum size of the two reach). (8)  | matrices is 20 x 20 |
| Q.5         | <ul> <li>a. Explain, in brief the purpose of the following string handling functions:</li> <li>(i) streat</li> <li>(ii) stremp</li> <li>(iii) strepy</li> <li>Use suitable examples</li> </ul>    | (6)                 |
|             | b. Write a C program to read a line of text containing a series (terminal. (7)  | of words from the   |
|             | c. Explain the need for user-defined functions.   | (3)                 |
| Q.6         | a. Differentiate between structure and union, use suitable examples.  | (4)                 |
|             | b. What are the various parameter passing mechanisms? Explain them briefly.   | (4)                 |
|             | <ul> <li>c. Define a structure in C, which stores subject-wise marks of a student. Us write a C program to calculate the total marks in each subject for all the student.</li> <li>(8)</li> </ul> | •                   |
| <b>Q.</b> 7 | a. Distinguish between break and goto statement.  | (4)                 |
|             | <ul><li>b. Explain the following directives:</li><li>#elif #pragma #error</li></ul>   | (6)                 |
|             | c. Using recursion, write a C program to reverse a given number.  | (6)                 |

Q.8 a. Write a C function to delete a given item from a single linked list. Check for duplicate elements. (8)

b. Consider the following:

P<sub>1</sub> is an integer pointer

P<sub>2</sub> is a long integer pointer

P<sub>3</sub> is a character type pointer

The initial value of  $P_1$  is 2800,  $P_2$  is 1411 and  $P_3$  is 1201.

What is the new value of  $P_1$  after  $P_1=P_1+1$ ,  $P_2$  after  $P_2=P_2+1$  and

$$P_3$$
 after  $P_3 = P_3 + 1$ ; (4)

- c. Differentiate between White Box and Black Box Testing. (4)
- Q.9 a. Write a C program using pointers to compute the sum of all elements stored in an array. (8)
  - b. Write a C program to create a file contains a series of integer numbers and then reads all numbers of this file and write all odd numbers to other file called odd and write all even numbers to a file called even. (8)