

Reg. No. :

**Question Paper Code : Z 9330**

5 Year M.Sc. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Second Semester

Computer Technology

XCS 125 — PROGRAMMING IN C

(Common to M.Sc. Information Technology and M.Sc. Software Engineering)

(Regulation 2003)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Draw any two flowchart symbols and explain their meaning.
2. Give the classification of algorithms.
3. What is an unsigned integer constant? What is the significance of declaring a variable unsigned?
4. Define the terms precedence of operators and associativity of operators.
5. What are the format codes available to get a character, integer and float data in C?
6. How will you initialize a two dimensional array?
7. Write the syntax for function prototype in C.
8. Differentiate Structures from Unions.
9. Give the format of macro substitution directive in C with an example.
10. What is the use of fseek () Function? Explain with Syntax.

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the characteristics of a good algorithm? (6)  
(ii) Write an algorithm to extract a substring from a given string and replace it with another string. (10)

Or

- (b) (i) Compare and contrast high level languages and machine languages. Discuss the features of any two high level languages. (8)  
(ii) Draw a flowchart to count the number of alphabets (uppercase, lowercase), numerals and special characters in a given string. (8)
12. (a) (i) What are user-defined data types in C? Explain about two user-defined data types with example. (8)  
(ii) Write a program in C to distinguish the pre-increment and post-increment operators as well as pre-decrement and post-decrement operators. Explain with a sample output. (8)

Or

- (b) Explain the different types of operators available in C. Give their associativity and precedence chart. (16)
13. (a) (i) Explain the use of 'break' and 'continue' statements in a loop. (6)  
(ii) Write a program to calculate the commission using decision making construction. The commission on a sales representative's sales is calculated as follows :-  
(1) If sales  $\leq$  Rs.2000, then there is no commission.  
(2) If Rs.500  $<$  sales  $\leq$  Rs.5000 then commission = 10% of sales.  
(3) if sales  $>$  Rs.5000, then commission = Rs.5000 + 8% of sales above Rs.5,000. (10)

Or

- (b) (i) Explain various console input-output functions available (8)  
(ii) Write a program to check whether the given number is a palindrome or not. (8)

14. (a) (i) What are the different types of passing arguments to a function? Explain. (8)

(ii) Write a Program which will read a string and rewrite it in the alphabetical order. (8)

Or

(b) (i) What are the different ways in which a structure can be passed to a function? Discuss the guidelines to be followed while passing structure to a function. (8)

(ii) Using pointers, write a function that receives a sorted array of integers and an integer value, and inserts the value in its correct place. (8)

15. (a) (i) Explain the different file input-output functions available in C. (8)

(ii) Two files contain sorted lists of integers. Write a program to produce a third file which holds a single sorted, merged list of these two lists. Use command line arguments to specify the file names. (8)

Or

(b) Write a menu driven program to create a linked list of a class of students and perform the following operations. (16)

(i) Write out the contents of the list.

(ii) Edit the details of a specified student.

(iii) Count the number of students above a specified age and weight.

Reg. No. :

**Question Paper Code : Z 8426**

B.Sc. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Third Semester

Computer Technology

BCS 231 — PARTIAL DIFFERENTIAL EQUATIONS AND INTEGRAL TRANSFORMS

(Common to B.Sc. Information Technology)

(Regulation 2003)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Solve  $pq = 1$ .
2. Find the general solution of  $px + qy = z$ .
3. State Dirichlet's conditions.
4. Find a Fourier sine series for the function  $f(x) = 1; 0 < x < \pi$ .
5. State Fourier integral theorem.
6. If Fourier transform of  $f(x)$  is  $F(s)$ , prove that the Fourier transform of  $f(x) \cos ax = \frac{1}{2} [F(s-a) + F(s+a)]$ .
7. Find  $\int_0^{\infty} \sin^2 5t dt$ .