This question paper contains 2 printed pages.)

Your Roll No. .....................

2514

A

B.Sc./I

COMPUTER SCIENCE—Paper I

(Programming Fundamentals and Data Structures)

Time : 3 Hours Maximum Marks : 38

(Write your Roll No. on the top immediately on receipt of this question paper.)

All questions are compulsory.

1. (a) What are bitwise operators? Explain giving examples. 2

(b) Differentiate between While and Do-while looping statements. Give examples. 3

(c) Write a 'C' statement to evaluate the following expression:

\[ y = 9x^2 + 8x + 5 \]

2. (a) Write a for loop segment to determine whether two arrays a and b have an element in common. 3

(b) WAP to read a list of student names and their total marks in percentage and print the average result of the class. 3

3. (a) What are automatic, external, static and register variables? Give examples. 3

[P.T.O.]
(b) Write a recursive function reverse(s) to reverse the characters of a given string. 3

(c) Write a macro min (a, b) to find minimum of two numbers. 2

4. (a) Enumerate the correspondence between array indexing and pointer arithmetic. Write the code for function strlen ( ) to find the length of a string S using pointers. 5

(b) Write a function void ins (node * n, intp) to insert the node pointed by n after pth node in a linked list. 3

(c) Write a C function to insert an element in a queue of integers. 2

5. (a) Construct a binary search tree for input list as given:

25, 23, 6, 9, 2, 11, 15, 22, 26, 16.

Give its preorder and inorder traversals also.

(b) Write a ‘C’ program to implement push and pop operations on a stack. 3