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 :   1

   $$y = 9x^2 + 8x + 5$$

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 :   5

      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