

This question paper contains 4+1 printed pages]

Your Roll No.

8064

B.Sc.(G)/I

D

COMPUTER SCIENCE—Paper I

(Programming Fundamentals and Data Structures)

(Admissions of 1999 and onwards)

Time : 3 Hours

Maximum Marks : 38

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

All questions are compulsory.

Parts of a question must be answered together.

i. (a) For given declaration

```
int a[10];
```

What are &a and *a ?

1

(b) Differentiate an auto and external storage class. 2

P.T.O.

- (c) Convert the following for loop to a while loop.

```
for(i=10;i>0;i--)
```

```
printf("%d",i*i);
```

1

- (d) Differentiate between Syntax error and Logical error.2

- (e) Giving examples explain the difference between a Union and a Structure ? 2

2. (a) Following is the program segment to compute the sum of given 10 numbers. 2

Find the logical error(s), if any.

```
n=0; sum=0;
```

```
while(n<10)
```

```
{
```

```
scanf("%d",&num);
```

```
sum=sum+num;
```

```
}
```

- (b) What is the output of the following program segment ?

```
for(i=0;i<2;i++)
```

```
for(j=0;j<2;j++)
```

```
{ if(i==j)
```

```
continue;
```

```
printf("%d %d", i,j);
```

```
printf("\n");
```

```
}
```

- (c) Write a nested loop to print the following pattern : 2

```
1
```

```
2 3
```

```
4 5 6
```

```
7 8 9 10
```

3. (a) Write a function to compare two strings without using `strcmp` function. 3
- (b) Write a program which reads a line of text and stores each character in upper case in a text file. 3
- (c) Write a recursive function to print the sum of first n natural numbers. 2
4. (a) Define LIFO and FIFO lists ? Give *one* application of each. 2
- (b) Give the declaration of a node to create single link list which can store :
- Employee code, employee name and date of birth (dd/mm/yyyy) of the employee. 2
- (c) Give advantages and disadvantages of a doubly link over a single list. 2
- (d) Write a function to append a singly linked list at the end of another singly linked list. 2

5. (a) Sort the following numbers in ascending order using bubble sort. Show the list after each pass : 3

21, 18, 52, 14, 26, 7

- (b) Evaluate the following prefix expression. Show all the steps : 2

* - 6 2 + 3 4

- (c) Create a Binary Search Tree for the following values. Also show the sequence of the nodes in which they are visited in Preorder and Postorder traversal : 3

26, 18, 9, 58, 29, 7 and 35.