2015

MCA

1st Semester Examination

PROGRAMMING LAB

(PRACTICAL)

PAPER—MCA-106

Full Marks : 100

Time : 3 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer any *two* questions.

1. The total distance travelled by a vehicle in t seconds is given by : distance = $ut + (at^2)/2$

where, u is the initial velocity, a is the acceleration.

Write a program to evaluate the distance travelled at regular intervals of time, given the values of u and a. The program should provide the flexibility to the user to select his own time intervals and repeat the calculations for different values of u and a.

2. Write a program that displays a given number as follows :

First line : all digits
Second line : all digits except first
Third line : all digits except first two
....
....
For example : Input : 9872
9 8 7 2
9 8 7
9 8
9

3. Write a program to produce the following output :

```
A B C D E D C B A
A B C D   D C B A
A B C       C B A
A B           B A
A               A
```

4. Write a program to add first n numbers of the following series using do-while loop (where 'n' is a user-defined integer) :

$$\frac{1}{1!}+\frac{2}{2!}+\frac{3}{3!}+\ldots+\frac{n}{n!}$$

5. Write a program to add a user-defined function to a library.

6. Write a program to copy the content of an array to another array in reverse order using recursion.

7. Write a program that will read a line and delete from it all the occurrence of the word 'the' (case insensitive).

8. Create a structure to specify data on students given below :

Roll number, Name, Department, Course, Year of Joining.

Assume that there are not more than 30 students in the department :

(a) Write a function to print names of all a student who joined in a particular year

(b) Write a function to print the data of a student whose roll number is given.

9. Write a program to compare two given dates. To store a date, use a structure that contains date, month and year. If the dates are equal, print 'Equal', else print 'Unequal'.

10. Write a program to copy a given file to another file.

11. Write a program using call by address that contains the following two functions :

(a) Swapping two numbers.

(b) Finding maximum among three input numbers.

12. Write a program that fills a n×n matrix as follows and displays it :

— Upper right triangle with + 1s

— Lower left triangle with – 1s

— Right to left diagonal with zero

where n is an input integer.

For n = 3, output :

0	1	1
–1	0	1
–1	–1	0

Laboratory Note Book : **10**

Viva Voce : **20**
