2016

M.Sc. 1st Semester Examination

APPLIED MATHEMATICS WITH OCEANOLOGY

AND

COMPUTER PROGRAMMING

PAPER—MTM-104

Full Marks : 50

Time : 2 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.

[*Advanced Programming in C and MATLAB*]

1. Answer any *five* questions :   5×1

   (i)   How can you remove one or more elements from an array in MATLAB ?

(ii) Explain the left division by a matrix in MATLAB.

(iii) What is the function of deconv in MATLAB ?

(iv) How will you convert a hexadecimal number into octal number in MATLAB ?

(v) What is the output of the following :

```
void main ( )

{

int a = 0xff ;

if (a << 4>> 12)

printf ("Leftist");

else

printf("Rightist");

}
```

(vi) How is an enumeration defined ?

(vii) How is a union member accessed ?

(Continued)

2. Answer any *seven* questions : 5×7

(i) What do you understand by 'call by value' and 'call by reference' ? Explain these two in swapping two values through two programs.

(ii) Explain the concepts of 'pointer' and 'pointer variable'. How can a pointer variable be initialized ? What is the relationship between an array and a pointer ? Illustrate all with examples.

(iii) Write a program in C to allocate sufficient memory to hold a string, then copy this string to this space and then increase the space tq append one additional character to the end of the string.

(iv) Write a program to copy the contents of a given source data file to a new destination file.

(v) Summarize the various preprocessor directives other than '# include' and '# define'. Indicate the purpose of the more commonly used directives.

(vi) Write a script in MATLAB to display all possible submatrices from a matrix of any order.

(vii) Explain the utilities of 'inline', 'eval' and 'feval' functions.

(viii) Write a script in MATLAB to create a matrix of desired size from an array input using 'sscanf' function.

(ix) Describing 'switch' statement in MATLAB, write a script to check whether a word is uppercase or lowercase.

(x) Write a script in MATLAB to find the roots of a quadratic equation defined by an user defined function.

(Internal Assessment : 10 Marks)