

2014

MATHEMATICS

( Major )

Paper : 6.3

Full Marks : 40

Time : 2 hours

*The figures in the margin indicate full marks  
for the questions*

1. Answer any six questions : 1×6=6
- (a) What is the utility of an 'assembler'?
  - (b) What is an algorithm?
  - (c) If  $a$  is an integer variable, then what value will be returned by  $a = 5 / 2$ ?
  - (d) What is the use of "\n"?
  - (e) What is a source program?
  - (f) Mention two basic data types used in C language.
  - (g) What happens if the condition in a do ... while loop is initially false?
  - (h) Give examples of two library functions.

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2. Answer any *two* questions :  $2 \times 2 = 4$

(a) What is the difference between C 'character' and C 'string'? Explain briefly.

(b) What is an 'array variable'? How does it differ from an 'ordinary variable'?

(c) Mention two advantages of 'user defined functions'.

3. Answer any *two* questions :  $5 \times 2 = 10$

(a) Write a C program to find the biggest of three given numbers using a 'nested if' statement.

(b) Give the general form of the 'switch' statement and explain how it works.

(c) Write a C program using 'for loop' to find the factorial of a given integer  $K$ .

4. (a) Define a one-dimensional array having 50 elements. Write a C program to calculate the sum of values stored in even numbered elements starting from the subscript 0. 5

Or

Write a C program to add two  $3 \times 3$  matrices.

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(b) Write a function to find the factorial of a given integer and then use it to find  ${}^n C_r$ , where

$${}^n C_r = \frac{n!}{r!(n-r)!} \quad 5$$

Or

Write a C program to find the sum of two values using pointer.

5. (a) What is meant by a 'recursive function' or 'recursion'? Explain with the help of an example. 5

Or

What are different storage classes in C? Write short notes on any two of them.

(b) Write short notes on : 5  
(i) Break statement  
(ii) Continue statement

Or

In C language, a function can be called by the calling program in two ways—

- (i) call by value;
- (ii) call by reference.

Explain both the ways.

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