Total No. of Questions—**5**] [Total No. of Printed Pages—**3**

Seat No.	

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B.C.A. (First Semester) EXAMINATION, 2017

113 : PRINCIPLES OF PROGRAMMING AND ALGORITHMS

(2013 PATTERN)

Time : Three Hours **Maximum Marks : 80**

N.B. **:—** (*i*) *All* questions are compulsory

(*ii*) Neat diagram must be drawn wherever necessary.

1. Answer the following (*All*) : [8×2=16]

(*a*) What is searching ?

(*b*) What is row major order in an array ?

(*c*) Define flowchart.

(*d*) What is algorithm ?

(*e*) What is local variable ?

(*f*) List any *four* sorting techniques.

(*g*) List the types of an array.

(*h*) Explain Big-O notation in brief.

2. Answer the following (any *four*) : [4×4=16]

(*a*) Explain time complexity with an example.

(*b*) What is flowchart ? Explain symbols used in flowchart.

P.T.O.

(*c*) Write an algorithm to print table of a given number.

(*d*) Draw a flow chart to check the year is leap year or not.

(*e*) Write an algorithm to calculate x to the power y.

3. Answer the following (any *four*) : [4×4=16]

(*a*) What is an array ? Explain the types of array.

(*b*) Explain any *two* sorting techniques with example.

(*c*) Draw a flow chart to calculate the sum of digits of a given number.

(*d*) Draw a flow chart to print factorial of a given number.

(*e*) Write an algorithm print the reverse of a given number.

4. Answer the following (any *four*) : [4×4=16]

(*a*) List the searching techniques. Explain linear search with example.

(*b*) Explain algorithm and its characteristics.

(*c*) Draw a flowchart to calculate sum of first '*n*' numbers.

(*d*) Write an algorithm to print fibonacci series upto '*n*' terms.

(*e*) Draw a flowchart to find given number is palindrome or not.

5. Answer the following (any *four*) : [4×4=16]

(*a*) Explain the concept of recursion.

(*b*) What is problem solving ? Explain any *one* technique in detail.

(*c*) Write an algorithm to check given number is Armstrong or not.

(*d*) Draw a flowchart to check entered number is prime or not.

(*e*) Write an algorithm find maximum of three numbers.