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B.C.A. (Semester I) EXAMINATION, 2016

PRINCIPLES OF PROGRAMMING AND ALGORITHMS

(2013 PATTERN)

Time : Three Hours

Maximum Marks : 80

N.B. :— (i) All questions are compulsory and carry equal marks.

(ii) Figures to the right indicate full marks.

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

- (a) What is algorithm ?
- (b) What is bubble sort ?
- (c) What is flow chart ?
- (d) Explain Big-O Notation.
- (e) List sorting techniques.
- (f) What is recursion ?
- (g) Define Array.
- (h) What is time complexity ?
- (i) Explain sequential search.

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

- (a) Explain Bubble sort with example.

P.T.O.

- (b) Write an algorithm to check given number is palindrome or not.
- (c) Draw a flow chart to find maximum of 3 numbers.
- (d) Write an algorithm to calculate area of circle for given radius.
- (e) Draw a flow chart to find whether the given number is even or not.

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

- (a) What is Array ? Explain types of array.
- (b) What is flow chart ? Explain symbols of flow chart.
- (c) Write an algorithm to calculate x to the power y .
- (d) Draw a flow chart to calculate the factorial of a given number.
- (e) Write an algorithm to print whether the given year is leap year or not.

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

- (a) Explain program development life cycle.
- (b) Explain recursion with example.
- (c) Write an algorithm to print the given number in reverse.
- (d) Draw a flow chart to print sum of even numbers between 1 to 50.
- (e) Write an algorithm to print factors of a given numbers.

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

- (a) What is algorithm ? Explain characteristics of an algorithm.
- (b) Write an algorithm to print Fibonacci series upto ' n ' terms.
- (c) Draw a flow chart to print addition of 1 to n numbers.
- (d) Write an algorithm to swap the values of 2 numbers.
- (e) Draw a flow chart to find average of n given numbers.