

**Indian Statistical Institute**  
**Documentation Research and Training Centre**  
**M.S. in Library and Information Science**  
**Paper-10: Data Structures and Computer Programme**  
**2nd Semester**  
**Mid-Semester Examination 2017**

Time: 1:30 Hours  
Date: 23/02/2017

Marks: 40

Answer any five of the following questions:

(5x8=40)

- 1) What are Data structures? Specify different data types in C language and explain with examples.
- 2) Draw a flow chart for finding factorial of a number.
- 3) Write Enqueue, Dequeue, QueueFull, QueueEmpty functions for CIRCULAR QUEUE.
- 4) What is the state of the stack after the following sequence of pushes and pops:

```
Stack<int> s;  
s.push( 3 );  
s.push( 5 );  
s.push( 2 );  
s.push( 15 );  
s.push( 42 );  
s.pop();  
s.pop();  
s.push( 14 );  
s.push( 7 );  
s.pop();  
s.push( 9 );  
s.pop();  
s.pop();  
s.push( 51 );  
s.pop();  
s.pop();
```

- 5) What is linked list and write advantages and disadvantages of it?  
Write a function to find the number of nodes in a singly linked list.
- 6) What is binary search? Which data structure is preferred for its implementation, explain

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