



MBM-003-10120010

Seat No. _____

B. Sc. (Sem. II) (CBCS) Examination

March / April - 2018

CS-201 : Data Structures

(New Course)

Faculty Code : 003

Subject Code : 10120010

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- 1 (a) Answer the following questions. 4
- (1) Explain strlen().
 - (2) Malloc() returns _____.
 - (3) List out non-linear data structures.
 - (4) What is sparse matrix?
- (b) Answer the following questions : (any **one**) 2
- (1) Explain strcpy().
 - (2) What is multi-dimensional array?.
- (c) Answer the following questions : (any **one**) 3
- (1) Explain arithmetic operations on pointer.
 - (2) What is non-linear data structure? Define two non-linear data structure.
- (d) Answer the following questions : (any **one**) 5
- (1) What is Data Structure? Explain its types.
 - (2) Write a short note on pointer.
- 2 (a) Answer the following questions : 4
- (1) If TOS==MAX-1, Stack is Full. True or False?
 - (2) What is return type of pop()?
 - (3) UDF stands for _____
 - (4) If linked list is empty, pointer start will be _____.

- (b) Answer the following questions : (any **one**) **2**
- (1) Explain use of TOS.
 - (2) Explain LIFO.
- (c) Answer the following questions : (any **one**) **3**
- (1) Discuss concept of stack with real life examples.
 - (2) Explain circular linked list in detail.
- (d) Answer the following questions : (any **one**) **5**
- (1) WAP to implement Stack.
 - (2) Write a short note on Linked List.
- 3** (a) Answer the following questions : **4**
- (1) What is recursion?
 - (2) In a circular queue, if $\text{rear} == \text{MAX} - 1$, then it is full. True or False?
 - (3) What is full form of FIFO?
 - (4) Recursion is similar to _____.
- (b) Answer the following questions : (any **one**) **2**
- (1) Explain De-queue process.
 - (2) Differentiate Stack and Queue.
- (c) Answer the following questions : (any **one**) **3**
- (1) Explain Limitation of Queue.
 - (2) Explain how stack is used in Recursion with an example.
- (d) Answer the following questions : (any **one**) **5**
- (1) Write a short note on Circular Queue.
 - (2) Discuss Advantages and Disadvantages of Recursion.

- 4 (a) Answer the following questions : 4
- (1) If root=NULL in binary tree, binary tree is _____.
 - (2) What is Tree?
 - (3) What is In-Order?
 - (4) What is a node?
- (b) Answer the following questions : (any **one**) 2
- (1) What is graph traversals?
 - (2) What is shortest path problem?
- (c) Answer the following questions : (any **one**) 3
- (1) Write code for recursive Pre-Order traversal of Binary Tree.
 - (2) Explain BFS in brief.
- (d) Answer the following questions : (any **one**) 5
- (1) Explain All Traversal in Binary Tree.
 - (2) Write a short note on Graph.
- 5 (a) Answer the following questions : 4
- (1) Merge sort uses _____
 - (2) If the number of records to be sorted is small, then sorting can be efficient
 - (3) Partition and exchange sort is _____
 - (4) Binary Search algorithm cannot be applied to _____.
- (b) Answer the following questions : (any **one**) 2
- (1) List out limitations of binary search.
 - (2) Explain selection sort.

- (c) Answer the following questions : (any **one**) **3**
- (1) Discuss comparison of sorting techniques.
 - (2) Explain exit control loop and entry control loop..
- (d) Answer the following questions : (any **one**) **5**
- (1) Write a program to implement merge sort.
 - (2) WAP to arrange array values in ascending order using bubble sort..
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