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| ***National University of Computer and Emerging Sciences, Lahore Campus*** | | | | |
| C:\Users\saif\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\final design.jpg | **Course:** | Data Structures | **Course Code:** | CS 201 |
| **Program:** | BS(CS) | **Semester:** | Fall 2019 |
| **Duration:** | 15 Minutes | **Total Marks:** | 10 |
| **Paper Date:** | 7 Oct 2018 | **Exam** | Quiz 2 |
| **Section:** | **A** |  |  |
| **Instruction/Notes:** | Solve the exam on this question paper. | | | |

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| **Assume you have the Queue class and you can use its following functions**  bool Enqueue (T data)  bool Dequeue (T & val)  T TopElement()  void isEmpty(); |
| **Question1(10 marks): Write a recursive function to reverse a Queue. Fill in the details in the following function.**  **Template<class T>**  **void ReverseQueue(Queue<T> & q){**  **// Base case**  ------------------------------------------- 2.5 marks  **if (q.isEmpty())**  **return;**  **// General case** ------------------------------------------- 2.5 marks  // Dequeue current item (from front)  **T data;**  **q.dequeue(data);**    **// Make a recursive call**------------------------------------------- 2.5 marks        // Reverse remaining queue  **ReverseQueue(q);**        // Enqueue current item (to rear)  **q.enqueue(data);**  **}** |
| void main()  {      queue<int> Q;  for(int i=0;i<10;i++)       Q.enqueue(i);  reverseQueue(Q);  } |

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| **Give output of the following**  ------------------------------------ 2.5 marks | |
| **Void fun1(int n)**  **{**  int i=0;  if(n > 1)  func1(n – 1);  for(i = 0; i < n; i++)  printf(“ \* ”);  } | **Void main(){**  **function(4);**  **}** |
| **Answer: \* \* \* \* \* \* \* \* \* \*** | |