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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 Name:** | **Introduction to Computing** | **Course Code:** | **CS101** |
| **Program:** | **BS(CS)** | **Semester:** | **Spring 2018** |
| **Duration:** | **1 hr** | **Total Marks:** | **25** |
| **Paper Date:** | **Thursday, 12 Apr 2018** | **Weight** | **15** |
| **Section:** | **ALL** | **Page(s):** | **4** |
| **Exam Type:** | **Sessional 2** | **Roll No.** |  |
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| **Instruction/Notes:** | 1. Solve the exam on this question paper. No rough sheets allowed. | | | |

**Question # 1:** Write a C++ program that takes as input a sentence which is stored in character array and removes all the characters except the English Alphabets (A-Z and a-z), spaces and full stop. Note that you cannot use a second array for this. **(Marks: 15)**

**Skeleton and a sample run** of the program that performs these tasks is given below**.**

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| #include <iostream>  using namespace std;  **// Part a) Write Prototype of Functions Here**  void Input(char str[]);  void Remove\_Junk(char str[]);  bool compare\_char(char ch);  int main() {  char Str[100]={‘\0’};  cout<<"Enter the String: "<<endl;  Input (Str); // for input  Cout<< Str << endl; // Print before junk is removed  Remove\_Junk (Str);  Cout<< Str << endl; // Print after junk is removed  return 0;  } |
| **Sample Run:**  **For Example if Input Array is**: T,h’is, is m%,y fi%%rs,t wo(rl)d\*.  **The Output after removing junk should be**: This is my first world. |

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| **Part b)** In the space provided below, write C++ code of **Input (str)**.  void Input(char str[]){  cin.get(str, 100);  } |

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| **Part c)** In the space provided below, write C++ code for a compare function which will check, if given character belongs to English Alphabets (A-Z and a-z), spaces and full stop.  This function will be used in remove\_Junk function.  void Remove\_Junk(char str[]){  for (int i = 0; str[i] != '\0'; i++){  if (!compare\_char(str[i]))  {  for (int j = i; str[j] != '\0'; j++)  str[j] = str[j + 1];  i--;  }  }  } |

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| **Part d)** In the space provided below, write C++ code of **Remove\_Junk(Str)**.  bool compare\_char(char ch){  if (ch == '.' || ch == ' ' || (ch >= 65 && ch <= 90) || (ch >= 97 && ch <= 122))  return true;  else  return false;  } |

**Question # 2:** Write the output of the following program. **(Marks: 15)**

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| #include<iostream>  using namespace std;  void mystery1(int array1[], int n1, int &index);  void mystery2(int array2[], int a2[], int n2, int index2);  void mystery3(int array3[], int n3, int index3);  void mystery4(int array4[], int array3[], int index3);  int main(){  int k = 3;  int arr[5] = { 1, 2, 3, 4, 5 };    mystery1(arr, 5, k);  for (int i = 0; i<5; i++)  cout << arr[i] << " ";    cout << "\n Value of k is " << k <<endl;  return 0;  }  void mystery1(int array1[], int n1, int &index){  const int MAXOFFSET = 100;  int temp[MAXOFFSET];  if (index > 0)  {  mystery2(temp, array1, n1, index);  mystery3(array1, n1, index);  mystery4(temp, array1, index);  }  }  void mystery2(int array2[], int a2[], int n2, int index2){  for (int j = 0; j<index2; j++)  array2[j] = a2[n2 - index2 + j];  }  void mystery3(int array3[], int n3, int index3){  for (int i = n3 - 1; i >= index3; i--)  {  array3[i] = array3[i - index3];  index3++;  }  }  void mystery4(int array4[], int array3[], int index3){  for (int i = 0; i<index3; i++)  array3[i] = array4[i];  } |
| **Output:** |