

DATA STRUCTURES

BATCH – A

[TUESDAY JANUARY 24, 2017: 2:00 PM – 5:00 PM]

ASSIGNMENTS – 3

CODE: assign03

INSTRUCTIONS:

[Total Marks: 25]

- i) Read all assignments and each problem has to be answered in the same c file.
 - ii) Create a .c file following the file name convention: `abc-assign03.c`
Where `abc` is your roll number and `assign03` is the assignment code
 - iii) Strictly follow the file name convention and do not use `scanf()`
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PROBLEMS:

Consider the following list of 10 names:

1. Raguvanshi
2. M Radhakrishnan
3. Pauline Haddow
4. Sunil Chandran
5. Uma Gopinath
6. Soma Raju
7. T V Gopala Krishnan
8. Sudha Raghunath
9. Rajarshi Pal
10. Karthikeyan

1) **[Marks: 3 marks]**

Read the list of names and print the same. Also identify the longest name in the list and print the same

2) **[Marks: 6 marks]**

Using the above list, do the following:

- a) Perform Lexicographic Sorting of these names. Do not use “`strcmp`”
- b) Print the names that ends with “an”
- c) Print the names that contain the capital letter ‘R’ (may appear anywhere)

3) **[Marks: 5]**

Write a program to count the number of 3-grams and print the sorted list of trigrams with their count (sort 3-grams based in their count).

4) **[Marks: 6]**

Consider the following string: “m n o p q r s t u v”

- a) Write a recursive program that could find all permutations of 4 characters.
- b) Print those 4-grams that contain either “n o” or “s t”

5) **[Marks: 5]**

Write a program the find and print the longest repeating substring (that is in the alphabetical order) of the following string:

m n o a r s w t d e f g h a r a m n o p y q r r s
t u v w x y s t u v w x y x w z r w q t u v w x z