# COMPUTER PROGRAMMING LAB

**(BITS Pilani - K K Birla Campus)**

**Sem 2 2018-19/First Online Test – Shell and C programming**

**Sections 1, 2 and 3– Monday 5:00 pm to 6:15 pm**

Course No: *CS F111* Total: 30 Marks

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**Question 1** **(2*5=10 Marks)**

Create a file named **shellCommands.sh.** Save shell command(s) used to perform following tasks in **shellCommands.sh** file. Commands saved in **shellCommands.sh** file ONLY will be evaluated. You need to show the execution of commands saved in the file on terminal. No credit will be given to commands with errors.

i. File **Student.txt** contains student ID, NAME and CPGA. Create **Student.txt** using cat command with the following data:

| | | |
|---|---|---|
| **2018001** | **Yash** | **8** |
| **2018002** | **Smriti** | **9** |
| **2018003** | **Sammer** | **7** |
| **2018004** | **Avani** | **10** |

Save the file and exit.

ii. Append the following two records to the file **Student.txt** using cat command.

| | | |
|---|---|---|
| **2018005** | **Akash** | **6** |
| **2018006** | **Mayank** | **8** |

iii. Find the total number of students using shell command and save the output of command in file named **first.txt.**

iv. Save the details of a student who got the second highest CGPA in a file named **second.txt** using shell commands.

v. Find the detail of students whose name contains either **'A'** or **'H'** and save it in a file named **third.txt** using shell commands.

**Question 2** **(20 Marks)**

Write a C program that uses an array to represent a *set* that contains positive integers. The set can have a maximum of ten elements. The elements of the set are obtained from standard input (keyboard). The input values are a sequence of positive numbers that end with -1. Here -1 denotes the end of the sequence of positive numbers. Duplicate entries must be removed before storing the elements in an array because a set should not contain repeating elements.

E.g. Input : 2 3 10 4 4 10 99 -1
The array corresponding to the above input should contain: 2, 3, 10, 4, 99

Represent two sets A and B using arrays as described above. Elements of both the sets are obtained from the user. The two sets can contain different number of elements (maximum 10). Your C program must do the following:

(i) Display the elements of sets A and B (set cannot have repeating elements)
(ii) Perform set difference operation: Display the elements in A – B (again, there should not be any repeating elements)
(iii) Display the number of elements in the difference set A – B.

The input and output of your program must be as shown below:

```
wyz@cclab-510:~$ ./a.out
Enter elements of array A:
1
1
2
-50
2
3
-1
Enter elements of array B:
2
99
-5
99
2
-1


Set A : 1 2 3

Set B : 2 99

No. of elements in (A - B) = 2

Set (A - B) : 1 3
```