

2023

COMPUTER SCIENCE — HONOURS — PRACTICAL

Paper : DSE-B-2P

(Programming in Python Lab)

Full Marks : 30

Set - III

Marks Distribution

Source Code	:	15
Output	:	05
Sesional	:	04
Viva voce	:	06
		<hr/>
		30

Answer *any one* question.

1. Write a Python program to test whether a string S comprising of lowercase characters is a Heterogram or not. The string should be passed as a command line argument.

Note : A heterogram is a word, phrase, or sentence in which no letter of the alphabet occurs more than once.

Examples :

S = "the big dwarf jumps" is a heterogram

S = "the sun rises in the east" is not a heterogram

2. Write a Python program that answers percentage of leap years over non-leap years between user inputted range of years.

Say : l-range = 2018

u-range = 2022

$$\text{answer} = \frac{1}{5} \times 100\% = 20\%$$

Sudipta Biswas  
20/02/24,

( 2 )

Z(5th Sm.)-Computer. Sc.-H/Pr./DSE-B-2P/CBCS/Set-III

3. Write a Python program to accept two filenames as user input. Then read each line of the first file, sort the lines alphabetically and copy the sorted content to the other file. Report if source file is blank.

**Say I/P file content :**

Welcome  
to you in  
this planet called earth

**O/P file content :**

Welcome  
in to you  
called earth planet this

4. Write a menu driven program in Python to perform matrix addition and matrix multiplication. Input each matrix as python list of lists. Do necessary checkings.
5. Write a Python program that takes a list of words from command line argument and return the smallest and the longest words and lengths of each of them.
6. Write a Python class to implement stack data structure with the necessary functions : push(e), pop() and top-of-stack() which observes/returns the top element without removing from stack.
7. Write a Python program to search for numbers (0-9) of length between 1 and 3 in a given string. Numbers are separated by ',' (commas) in the string.
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Sudipta Biswas  
20/02/24