2019

COMPUTER SCIENCE — HONOURS — PRACTICAL

Paper : CC-7P

Full Marks : 30

DAY – 1

Marks Distribution :

Algorithm / Flowchart	—	05
Program Implementation	—	15
Output	—	03
Laboratory Notebook	—	02
Viva voce	—	05
		30

Answer ***any one*** question.

1. Write a shell script to find the sum of the following series :

   $1! + 2! + 3! + \ldots$ up to n terms.

2. Write a shell script to check whether a number is a palindrome or not.

3. Write a shell script to perform the basic mathematical operations on two numbers as follows :

   (a) addition (b) subtraction (c) multiplication (d) division.

   Write a menu driven program to implement it.

28. 1+2+4+7+14

4. Input any integer number '*n*'. Write a shell script to find the binary equivalent and hexadecimal equivalent of that number.

5. Write a shell script to print all Armstrong numbers within a given range.

6. Write a shell script to find the GCD of three numbers given as input.

7. Write a shell script to print the following pattern. The number of rows will be supplied from command line.

```
* * * * *
  * * *
    *
```

8. Write a shell script to print the maximum and minimum of *n* numbers without sorting the numbers.

9. Write a shell script to read a string as input and display the number of characters, vowels and consonants in the string.

10. Write a shell script to print all prime numbers within a given range. The range will be provided as input.

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DAY – 2

Answer ***any one*** question.

Marks Distribution:

Algorithm / Flowchart	-	05
Program Implementation	-	15
Output	-	03
Laboratory Notebook	-	02
Viva voce	-	05
		30

1. Write a shell script to print the following pattern, where the number of rows is supplied as command line argument.

   Eg.

   For no. of rows, $n = 5$

   ```
         0
       0 1
     0 1 0
   0 1 0 1
 0 1 0 1 0
   ```

2. Write a shell script to find the roots of a quadratic equation. Consider all 3 cases — real and equal, real and unequal, and imaginary.

3. Write a shell script to print all non-prime Fibonacci numbers less than 50.

4. Write a shell script that prints the names of all directories, the length of whose names are > 5 characters, present in the current working directory.

5. Write a shell script to print the particular word frequency of a text file. The word is supplied as a command line argument.

6. Write a shell script to simulate the working of the 'wc' command.

7. Write a shell script to count the number of words not containing the character 'a' or 'e' in a given text file.

8. Write a shell script to delete all numbers present in a text file. The name of the file is supplied as a command line argument.

9. Write a shell script to perform matrix multiplication of 2 matrices, along with necessary error checking.

10. Write a shell script to print names of all C program files, whose size is zero, present in the current working directory. [Initially, create some .C files of size 0]

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DAY – 3

Answer ***any one*** question.

Marks Distribution :

Algorithm / Flowchart	-	05
Program Implementation	-	15
Output	-	03
Laboratory Notebook	-	02
Viva voce	-	05
		30

1. Write a shell script to find out whether a string is palindrome or not. (eg : 'madam', '020').

2. Write a shell script to display the Fibonacci numbers up to 'n' terms. 'n' will be given as input.

3. Write a shell script to print the following pattern :

```
1
0 1
1 0 1
0 1 0 1
1 0 1 0 1
```

n is given as input.

4. Write a shell script to display the prime factors of a given number. The number will be given in command line.

5. Write a shell script to compute the LCM of two numbers given as input.

6. Write a shell script to find a number using binary search.

7. Write a shell script to find the roots of a quadratic equation $ax^2 + bx + c = 0$ considering all possible cases.

8. Write the shell script to find the prime factors of a given number.

9. Write a shell script to print the command line arguments in reverse order.

10. Write a shell script that take a word from user and find out the frequency of that word in a given file.

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Paper : CC-7P

Full Marks : 30

DAY – 4

Marks Distribution :

Algorithm / Flowchart	—	05
Program Implementation	—	15
Output	—	03
Laboratory Notebook	—	02
Viva voce	—	05
		30

Answer ***any one*** question.

1. Write a shell script to print the following pattern, taking numbers of rows (say n) as input from the user.
e.g.

For $n = 5$, the pattern is —

```
    *
  * * *
* * * * *
  * * *
    *
```

2. Write a shell script to calculate the GCD of 3 numbers. Include all necessary error handling cases.

3. Write a shell script to check numbers of files and directories in present working directory.

4. Write a shell script to print the name of the files which have read permission for all user, group and others.

5. Write a shell script to perform any base to any base conversion. (up to 10)
e.g.

I/P : n = 101, input base = 2, output base = 10
O/P : 5.

6. Write a shell script to substitute a particular word in a text file with another.

7. Write a shell script to delete all lines of a text file, containing the word "exam".

8. Write a shell script to design a menu driven binary calculator performing the following operations :
+, –, *, /, %, ^ (6 cases in total)

9. Write a shell script to convert the content of a text file from upper to lower case.

10. Write a shell script to print the contents of a text file from line number 'm' to line number 'n', where 'm' and 'n' are to be taken as input from the user. Initially, perform validity checking on 'm' and 'n'.