CSA57-FUNDAMENTALS OF COMPUTING  
LAB EXPERIMENTS

**DAY1**

**Note:Write algorithm ,flowchart,program for these experiments**

1. Generation of number series 1, 2, 3, 4,…..n
2. Generation of even number series 2, 4, 6, …..n
3. Generation of ODD number series 1, 3, 5, …..n
4. Generation of Fibonacci series 0, 1, 1, 2, 3, 5, 8, …..n
5. Summing up series 1 + 2 + 3 + 4….. +n
6. Summing up Even Number series
7. Summing up cubes of n numbers
8. Finding whether the given integer is odd or even

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| **Viva questions**  1)What is flow chart  2)What is an algorithm? What is the need for an algorithm?  3)What is the Complexity of Algorithm?  4)What is binomial expression for sum of series  5)What is binomial expression for sum of series of odd number  6)What is binomial expression for sum of series of even number  7)Find sum of odd numbers through square numbers  8)Find sum of odd number starting from 7 |

1. Product series (Factorial of a given number)
2. Finding given number is Armstrong or not
3. Summing up any n numbers and finding average
4. Printing digits of an integer number
5. Summing up the digits of an integer number
6. Revering the digits of an integer number
7. Finding the given integer is positive or negative
8. Swapping two numbers with a temporary variable

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| **Viva questions**  1)Write an algorithm to reverse a string. For example, if my string is "uhsnamiH" then my result will be "Himanshu".  2)What is the logic to reverse a number?  3)What is the logic of factorial?  4)Why are factorials important?  5)What is the application of factorial?  6)What is Amstrong number?  7)Application of Amstrong number  8)Swapping a number without third variable |

**DAY 2**

**Note:Write algorithm ,flowchart,program for these experiments**

1. Program to convert decimal to hexadecimal
2. Program to convet Hexa to decimal

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| 1. Convert the following numbers from base 10 to base 16-   (2020)10  (2020.65625)10  (172)10  (172.983)10  **2)Convert decimal number 49 into hexadecimal.**  **3)Convert 122810 into hex.**  **4)Convert 60010 into a hexadecimal number.**  5)Convert the decimal number 1542 to the hexadecimal number.  6)What is the hexadecimal equivalent of the decimal number (175)10?  7)Convert the following decimal numbers to hex. (i) 205             (ii) 450         (iii) 199            (iv) 3000 |

1. Program to convert decimal to octal
2. Program to convert octal to decimal

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| Convert the following numbers from base 10 to base 8-   1. (1032)10 2. (1032.6875)10 3. (172)10 4. (172.878)10   **5.Convert (127)10 to Octal.**  **6.Convert 5210 to octal.**  **7.Convert 10010 to octal.**  **8.**Convert 45610 to Octal  9.Convert 21210 to Octal  10.Convert 10110 to Octal |

1. Program to convert binary to decimal

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| 1)Convert the following binary numbers to decimal numbers.  110110,101001,10111 |

1. Write a program for binary addition
2. Write a program for binary subtraction
3. Write a program for binary multiplication

Viva questions:

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| |  |  | | --- | --- | | 1. | 窗体顶端  Convert 40 from base 8 to base 2  窗体底端 | | 2. | Convert 7d from base 16 to base 10 | 窗体顶端  窗体底端 | | 3. | Convert 118 from base 10 to base 2 | 窗体顶端  窗体底端 | | 4. | Convert 1000010 from base 2 to base 10 | 窗体顶端  窗体底端 | | 5. | Convert 101100010 from base 2 to base 8 | 窗体顶端  窗体底端 | | 6. | Convert 11111011 from base 2 to base 10 | 窗体顶端  窗体底端 | | 7. | Convert 11011 from base 2 to base 10 | 窗体顶端  窗体底端 | | 8. | Convert b1 from base 16 to base 10 | 窗体顶端  窗体底端 | | 9. | Convert 1 from base 2 to base 10 | 窗体顶端  窗体底端 | | 10. | Convert 248 from base 10 to base 2 |  | | 11. | Application of decimal to binary conversion |  | | 12. | Application of decimal to hexa conversion |  | | 13 | Application of decimal to octal conversion |  | |

**DAY3**

**Linux commands and shell programming**

1. Linux Directories command
2. Linux file commands
3. Linux man commands
4. Linux file content commands
5. Linux file hierarchy commands
6. Linux filter commands
7. Linux I/O commands
8. Linux unix Tool command
9. Linux regex command
10. Linux shell commands
11. Linux networking commands
12. Linux vi editor
13. Linux system admin commands

<https://www.javatpoint.com/linux>

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| ****Viva questions********What is Linux?********What is the difference between Linux and Unix?********What is Linux Kernel? Is it legal to edit Linux Kernel?********What is LILO?********Which are the Shells used in Linux?********What is Swap Space?********What is the difference between BASH and DOS?********What command would you use to check how much memory is being used by Linux?********Explain file permission in Linux.********Which are the Linux Directory Commands?********What is Virtual Desktop?********Which are the different modes of vi editor?********What are the process states in Linux?********What are daemons?********Explain Process Management System Calls in Linux**** |

**Shell programming**

1. Shell Program to read a number and find its square
2. Shell Program to find the biggest of three numbers
3. Shell Program to find leap year
4. Shell Program to prepare mark list using elif statement
5. Shell Program to perform arithmetic operation on two numbers

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| Viva questions   1. ****What is Shell?**** 2. ****What is Shell Scripting?**** 3. ****What is the importance of writing Shell Scripts?**** 4. ****Shell programs are stored in which file?**** 5. ****What are the different types of Shells available?**** 6. ****What are the advantages of C Shell over Bourne Shell****? 7. ****Is separate compiler required for executing a shell program?**** 8. ****When should shell programming/scripting not be used?**** 9. ****How to accomplish any task via shell script?**** 10. ****What is the lifespan of a variable inside a shell script****? 11. ****What are the three modes of operation of vi editor**** |

**DAY 4**

**https://linuxpractical.wordpress.com/lab-exercise-4/**

1. Shell Program to print n natural number
2. Shell Program to find area of different shapes
3. Shell Program to check number is palindrome
4. Shell Program to solve quadratic equation
5. Shell Program for decimal to binary conversion
6. Shell Program factorial using recursion
7. Write a shell script to ask your name, program name and enrollment number and print it on the screen.
8. Write a shell script to find the sum, the average and the product of the four integers entered
9. Write a shell program to exchange the values of two variables
10. Write a shell script to display the digits which are in odd position in a given 5 digit number
11. Write a shell program to reverse the digits of five digit integer
12. Write a shell program to concatenate two strings and find the length of the resultant string
13. Write a shell program to find the position of substring in given string
14. Write a shell program to find the gcd for the 2 given numbers
15. Write a shell program to add, subtract and multiply the 2 given numbers passed as command line arguments

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| ****Viva questions:****   1. ****How to find out the number of arguments passed to the script?**** 2. ****What are control instructions and how many types of control instructions are available in a shell? Explain in brief.**** 3. ****How to execute multiple scripts? Explain with an example.**** 4. ****Which command needs to be used to know how long the system has been running?**** 5. ****How to find the current shell which you are using?**** 6. ****How to find all the available shells in your system?**** 7. ****How to read keyboard inputs in shell scripts?**** 8. ****What are the two files of crontab command?**** 9. ****What are the different commands available to check the disk usage?**** 10. ****What is Shebang in a shell script?**** |

**DAY5**

1. Create an advertisement in word
2. Illustrate the concept of mail merge in word
3. Create a spread sheet to analyze the marks of students of a class and create appropriate charts
4. Create a power point for department using PowerPoint

**AFTERNOON 12 TO 3**

Ask students to organize a event like workshop,for which ask them to crate a registration form,feedback form,response sheet,certificate in google slide,mailmerge using autocrat,report generation in word

<https://www.javatpoint.com/linux>

<https://www.onlinegdb.com/online_bash_shell>

<https://copy.sh/v86/?profile=linux26>