

### **M. Tech. Laboratory Assignments (CSE 201L)**

1. Write a program to generate 56 bit key from 64 bit key through key discarding process of DES.
2. Write a program to generate output based on initial permutations from 64 bit plane text.
3. Write a program to generate Key Transformation i.e. to generate 48 bit key from 56 bit key through two steps process.
4. Write a program to generate Expansion Permutation i.e. to generate 48 bit text from 32 bit RPT/LPT.
5. Write a program to generate last stage of a round in LPT/RPT through the P-box Permutation
6. Write a program to generate output based on final permutations from concatenated 64 bit intermediate text to generate cipher text.
7. Write a simple client/server program in Java using RMI in which the server is able to add two numbers sent from the client and returns the sum to the client with an additional information whether the number is prime or not.
8. Write a simple client/server program in Java using RMI in which the server is able to multiply two numbers sent from the client and returns the result to the client with an indication whether the number is odd or even. Inputs should be provided by the user.
9. Server is able to print a string on the server side sent from the client and returns the same string with size of the string to the client so that client is able to print it. String should be a user input.
10. Server is able to print a string on the server side sent from the client and returns the same string with size of the string to the client so that client is able to print it. String should be a user input.
11. Write a program to implement Caesar cipher.
12. Write a program to implement Rail fence cipher
13. Write a simple client/server program in Java using Socket in which the server is able to print the string on the server site received from the client and returns the String "bye" to close the connection with the client.
14. Write a simple client/server program in Java using Socket in which the server is able to accept a string from the client and returns the reversed string to the client with size of the string. Strings should be user input.
15. Write a program in java to create an echo server using TCP Protocol. The program will consist of two parts. The client program reads a string from input stream send it to server, the server echoes back the same string in uppercase to the client.
16. Write a program in java to create an echo server using UDP Protocol. The program will consist of two parts. The client program reads a string from input stream send it to server, the server echoes back the same string in Initial Capital letter to the client.
17. Write a program in java to create an echo server using TCP Protocol. The program will consist of two parts. The client program reads a string from input stream send it to server, the server echoes back the same string in uppercase along with concatenating "rrworld" in lower case to the client.

18. Write a program in java to create an echo server using UDP Protocol. The program will consist of two parts. The client program reads a string from input stream send it to server, the server echoes back the same string along with a "RR2014" in uppercase to the client.
19. Write a simple client/server program in Java using Socket in which the server is able to print the string along with each of its ASCII code on the server site received from the client. String should be a user input.
20. Write a program to implement Decimal encryption & decryption using triangular method.
21. Write a program to implement RSA encryption & decryption.
22. Write a simple client/server program in Java using Socket in which the server is able to accept two consecutive strings from the client and returns the concatenated string along with concatenating "INDIA2015" to the client. Strings should be user input.
23. Write a simple client/server program in Java using RMI in which the server is able to add and subtract two numbers sent from the client and returns the sum and difference along with the result of multiplication of the results to the client.
24. Write a simple client/server program in Java using RMI in which the server is able to add two numbers sent from the client and returns the sum to the client along with the numbers with a message "bye". Inputs should be provided by the user.
25. Write a simple client/server program in Java using RMI in which the server is able to add, multiply, subtract, divide two numbers sent from the client and returns the sum along with the numbers and sum of the digits of the result to the client. Inputs should be provided by the user.
26. Write a simple client/server program in Java using RMI in which the server is able to add, multiply, subtract, divide two numbers sent from the client and returns the sum along with the numbers and multiplication of the digits of the result to the client. Inputs should be provided by the user.
27. Write a simple client/server program in Java using RMI in which the server is able to print a string on the server side sent from the client and returns the same string with concatenate String "World CUP" to the client so that client is able to print it. String should be a user input.
28. Write a program to show concurrency control of a variable/function.
29. Implement RSA for the string "Engineering Technology and Management".
30. Implement symmetric encryption by XORing four consecutive characters and replacing first two characters with results.
31. Generate a digital certificate by multiplying each digit in the (number + position of the digit) with the next digit (excluding it if it is 0) and disregarding the first digit if the multiplication operation if the result is a two digits number. Embed the digest generate at end of the file you have taken (file contains numbers only).

32. Write a program in java to create an echo server using TCP Protocol. The program will consist of two parts. The client program reads a digit from input stream send it to server, the server echoes back the same digit along with conversion of the digit in word form.

33. Implement symmetric encryption by XORing two consecutive characters and replacing second character (minimum length 128 bits).

34. Implement symmetric encryption by XORing two consecutive bits of a byte and replacing first bit with the result. Do it for a 128 bit string.

35. Design a key expansion process by performing following operations

a. Take a 32 bit binary string to be converted form four character to be input from keyboard.

b. Make four pair each of four bits

c. Perform following operations for each pair of string

i. First bit of first sub-block to be concatenated to the end of second sub-block

ii. Last bit of second sub-block to be concatenated to the beginning of first sub-block

iii. First bit of second sub-block to be concatenated to the end of first sub-block

iv. Last bit of first sub-block to be concatenated to the beginning of second sub-block.

This generates expanded 48 bit numbers.

36. Take a 512-bit string. Construct a substring by taking bits from Fibonacci positions from the string. Concatenate the substring generated at the beginning and remaining at end. Print both string. Decode the original string.

37. Take a 512-bit string. Construct a substring by taking bits from prime positions from the string. Concatenate the half substring generated at the beginning and half at end. Print both strings. Decode the original string.

38. Take a 512-bit string. Construct a substring by taking bits from even positions from the string. Concatenate the half substring generated at the beginning and half at end. Print both strings. Decode the original string.

39. Do the following :

○ Write a program to generate 56 bit key from 64 bit key through key discarding process of DES.

○ Write a program to generate output based on initial permutations from 64 bit plane text.

○ Write a program to generate Key Transformation i.e. to generate 48 bit key from 56 bit key through two steps process.

○ Write a program to generate Expansion Permutation i.e. to generate 48 bit text from 32 bit RPT/LPT.

40. Write a program to generate last stage of a round in LPT/RPT through the P-box Permutation.
41. Write a program to generate output based on final permutations from concatenated 64-bit intermediate text to generate cipher text.
42. Implement simple Columnar Transposition Technique.
43. Implement vermin cipher.
44. Implement book cipher/running key cipher.
45. Implement modular 2 Even Odd encryption.
46. Write a program to generate 56 bit key from 64 bit key through key discarding process of DES.
47. Write a program to generate output based on initial permutations from 64 bit plane text.
48. Write a program to generate Key Transformation i.e. to generate 48 bit key from 56 bit key through two steps process.
49. Write a program to generate Expansion Permutation i.e. to generate 48 bit text from 32 bit RPT/LPT.
50. Write a program to generate last stage of a round in LPT/RPT through the P-box Permutation
51. Write a program to generate output based on final permutations from concatenated 64 bit intermediate text to generate cipher text.
52. Write a program to generate 56 bit key from 64 bit key through key discarding process of DES.
53. Write a program to generate output based on initial permutations from 64 bit plane text.
54. Write a program to generate Key Transformation i.e. to generate 48 bit key from 56 bit key through two steps process.
55. Write a program to generate Expansion Permutation i.e. to generate 48 bit text from 32 bit RPT/LPT.
56. Write a program to generate last stage of a round in LPT/RPT through the P-box Permutation
57. Write a program to generate output based on final permutations from concatenated 64 bit intermediate text to generate cipher text.