C Programmes for The Internal Exam.

These are the listed programs mentioned for first internal lab exam. Come to lab exam -your rough record all programs must be signed. Exam on 20/12/22

Part A:

1) C program to find largest of 3 numbers
2) C program to display n Fibonacci series.
3) C program to find the tax rate for the gross salary of an employ based on condition.
4) Write a C program to reverse a number and find the sum of individual digits. Also check for palindrome.

Part B:

1) Write a C program to accept n numbers into an array and to find the sum and average of those numbers.
2) Write a C program to accept a list of elements and to find the maximum and minimum elements along with their positions.
3) Write a C program to accept a matrix and find the transpose of the matrix. Also find whether the given matrix is symmetric or not.

Part A:

1) C program to find largest of 3 numbers.

```
#include<stdio.h>

void main() {
  int a, b, c, large;
  clrscr();
  printf("Enter 3 numbers: ");
  scanf("%d %d %d", &a, &b, &c);
  large = a;
  if (b > large)
    large = b;
  if (c > large)
    large = c;
  printf("Largest Number is: %d", large);
  getch();
}
```

Output:

```
Enter 3 numbers: 5 4 6
Largest Number is: 6
```

2) C program to display n Fibonacci series.

```
#include<stdio.h>
#include<conio.h>

void main() {
  int n, i = 0, fib1 = 0, fib2 = 1, fib3;
  clrscr();
  printf("Enter the upper limit: ");
  scanf("%d", &n);
  printf("Fibonacci numbers are:\n");
  while (i<n){
    if (i == 0)
      printf("%d\n", fib1);
    else if (i == 1) {
      printf("%d\n", fib2);
    } else {
      fib3 = fib1 + fib2;
      fib1 = fib2;
      fib2 = fib3;
      printf("%d\n", fib3);
    }
    i++;
  }
  getch();
}
```

Output:

```
Enter the upper limit: 6
Fibonacci numbers are:
0
1
1
2
3
5
```

3) C program to find the tax rate for the gross salary of an employ based on condition.

```
#include<stdio.h>
#include<conio.h>

void main() {
  long int gross;
  int tax = 0, index;
  clrscr();
  printf("Enter the gross salary : ");
  scanf("%ld", &gross);
  index = gross/1000;
  switch(index){
  case 0:
  case 1:
    tax = 0;
    break;
  case 2:
  case 3:
    tax = gross * 3/100;
    break;
  case 4:
  case 5:
    tax = gross * 5/100;
    break;
  default:
    tax = gross * 8/100;
    break;
  }
  printf("Gross Pay = %ld\n Tax = %d", gross, tax);
  getch();
}
```

Output:

```
Enter the gross salary :20000
Gross Pay = 20000
Tax = 1600
```

4) Write a C program to reverse a number and find the sum of individual digits. Also check for palindrome.

```
#include<stdio.h>
#include<conio.h>

void main() {
  int n, rem, temp, rev=0, sum=0;
  clrscr();
  printf("Enter a number: ");
  scanf("%d", &n);
  temp = n;
  while(n>0){
    rem = n % 10;
    sum = sum + rem;
    rev = rev * 10 + rem;
    n = n/10;
  }
  printf("The reverse of %d is %d\n", temp, rev);
  if (temp == rev)
    printf("%d is palindrome", temp);
  else
    printf("%d is not a palindrome", temp);
  printf("\nThe sum of the digits is %d\n", sum);
  getch();
}
```

Output:

```
Enter a number: 2500
The reverse of 2500 is 52
2500 is not a palindrome
The sum of the digits is 7
```

Part B:

1) Write a C program to accept n numbers into an array and to find the sum and average of those numbers.

```
#include<stdio.h>

void main() {
  int a[20], i, sum = 0, n;
  float avg;
  clrscr();
  printf("enter the size of array: ");
  scanf("%d", &n);
  printf("Enter %d integer numbers: ", n);
  for(i=0;i<n;i++)
    scanf("%d", &a[i]);
  for(i=0;i<n;i++) {
    sum = sum + a[i];
  }
  avg = (float)sum/n;
  printf("\nSum = %d", sum);
  printf("\nAverage = %f", avg);
  getch();
}
```

Output:

```
enter the size of array: 4
Enter 4 integer numbers: 5 5 5 5
Sum = 20
Average = 5.000000
```

2) Write a C program to accept a list of elements and to find the maximum and minimum elements along with their positions.

```
#include<stdio.h>
#include<conio.h>

void main() {
  int arr[10], n, i, big, small, bpos, spos;
  clrscr();
  printf("Enter number of elements:\n");
  scanf("%d", &n);
  printf("Enter the elements: ");
     for (i=0;i<n;i++) {
          scanf("%d", &arr[i]);
     }
  big = arr[0];
  small = arr[0];
  bpos = 1;
  spos = 1;
  for (i = 1; i < n; i++) {
    if (big < arr[i]) {
      big = arr[i];
      bpos = i + 1;
    }
    if (small > arr[i]) {
      small = arr[i];
      spos = i + 1;
    }
  }
  printf("The largest number is %d is at position %d\n", big,
bpos);
  printf("The smallest number is %d is at position %d", small,
spos);
  getch();
}
```

Output:

```
Enter number of elements: 5
Enter the elements: 1 2 3 4 5
The largest number is 5 is at position 5
The smallest number is 1 is at position 1
```

3) Write a C program to accept a matrix and find the transpose of the matrix. Also find whether the given matrix is symmetric or not.

```
#include<stdio.h>
#include<conio.h>

void main() {
  int a[10][10], m, n, i, j, flag;
  clrscr();
  flag = 0;
  printf("Enter rows and colomns:\n ");
  scanf("%d%d", &m, &n);
  printf("Enter the matrix element:\n");
  for (i=0;i<m;i++){
    for (j=0;j<n;j++){
      scanf("%d", &a[i][j]);
    }
  }
  printf("Entered matrix is:\n");
  for (i=0;i<m;i++){
    for (j=0;j<n;j++){
      printf("%d\t", a[i][j]);
    }
    printf("\n");
  }
  printf("Transpose of the matrix is:\n");
  for (i=0;i<n;i++){
    for (j=0;j<m;j++){
      printf("%d\t", a[j][i]);
    }
    printf("\n");
  }
  if (m!=n) {
    printf("Given matrix is not symmetric");
    getch();

  }
  for (i=0;i<m;i++) {
    for (j=0;j<n;j++) {
      if (a[i][j]!=a[j][i]) {
```

```
        flag = 1;
        break;
      }
    }
  }
  if(flag==0)
    printf("\nGiven Matrix is Symmetric");
  else
    printf("\nGiven Matrix is Not Symmetric");
  getch();
}
```

Output:

```
Enter rows and colomns:  2 2
Enter the matrix element: 4 3 2 1
Entered matrix is:
4    3
2    1
Transpose of the matrix is:
4    2
3    1

Given Matrix is Not Symmetric
```