PLDS ASSIGNMENT

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18CSR208

PART - A

1) * increase the execution speed of Programm
* Return multiple values from the function

2) 5, 5

3)
```
void main ()
{
 void * Ptr;
int a;
float b;
char c;

 Ptr =&a;
Printf ("\n%d", (int *) Ptr);
 Ptr =&b;
 Printf ("\n%f", (float *)Ptr);
  Ptr =&c;
  Printf ("\n%c", (char *)c);
 }
```

4) 10, 20, 30, 40, 50

5) malloc()
* allocates single block of meemory
* Does not initialize memory
* Syntax

calloc()
* Allocates multiple blocks of memory
* Initialize memory to zero.

6) *Return type of function must match with datatype of the function pointer.
* Function pointer variable name must be specified with parenthesis () and it must be preceeded by asterisk symbol *.

7) .(dot operator)
→ (Pointer operator)

8) struct person
{
int age;
Char name;
struct dob;

{
int day, month, year ;
}d;
}p;

9) Error, cannot assign address of the variable to integer ptr

10) Size of (a) = 4
~~Size of~~
Strlen (a) = 3

PART - B

11) a)

```
#include<stdio.h>
#include<conio.h>
void mainc)
 {
int price[200],n,P,i,j,temp;
Printf("Enter the mobile prices");
scanf(
for(i=0;i<100;i++)
 {
scanf("%d",&Price[i]);
 }
for(i=0;i<99;i++)
  {
   for(j=i+1 ;j<100 ;j++)
  {
   if(Price[i]<Price[j])
    {
    temp = Price[i];
     Price[i] = Price[j];
     Price[j]= ~~Price~~ temp;
   }
  }
}
Printf("The cheapest mobile =%d",Price[99]);
 Printf("Expensive mobile =%d",Price[0]),
Printf("Enter the price of new mobile");
Scanf("%d",&P);
 for(i=0;i<99;i++)
 {
```

```
    if (P>Price[i])
    {
     n=i;
    break;
    }
}
for (i=0;i<99;i++)
  {
   Price [i+1] =Price[i];
  }
 Price [i] =P;
 }
```

11) b)
```
#include<stdio.h>
#include<conio.h>
void main()
{
int rollno[70] ,Pass[60], fail[60], i,j ,n,k=0,
Printf("Enter the no. of students");
scanf("%d",&n);
Printf("Enter the student roll no.");
for (i=0; i<n;i++)
{
 scanf ("%d", &rollno[i]);
}
Printf ("Enter the roll of passed students");
 for(i=0; i<40;i++)
{
  scanf("%d" ,&Pass[i]);
}
for (i=0;i<n;i++)
 {
 flag=0;
```

```
for(j=0; j<40 ; j++)
 {
  if(rollno[i]==Pass[j])
{
 flag=1;
 break;
}
}
if(flag==0)
{
 fail[k++]=rollno[i];
 }
}

 for(i=0; i<k; i++)
 {
 Printf("%d", fail[i]);
 }
}
```

12) a)

```
#include<stdio.h>
#include<conio.h>
int *add(int (*)[3], int(*)[3], int, int)[3][3];
int *sub(int (*)[3], int(*)[3], int, int)[3][3];
void main()
{
int (*P1)[3][3], (*P2)[3][3], i, j, a[3][3], b[3][3];
Printf("Enter matrix A");
for(i=0; i<3; i++)
{
for(j=0; j<3; j++)
}
scanf("%d", (*(a+i)+j));
}
```

```
Printf("Enter matrix B");
 for(i=0; i<3; i++)
{
 for(j=0 ; j<3; j++)
{
scanf("%d", &(a+i)+j));
}
}
P1= add(a,b,3,3);
Printf("Matrix addition");
for(i=0; i<3; i++)
{
 for(j=0; j<3; j++)
{
Printf("%d"(*P1)[i][j]);
}}
P2= Sub(a,b,3,3);
Printf("Matrix subtraction");
 for(i=0; i<3; i++)
{
for(j=0; j<3; )++)
{
Printf("%d", (*P2)[i][j]);
}
}
int *add(int(*a)[3], int(*b)[3], int r, int c)[3]
{
int i,j; static int ad[3][3];
 for(i=0; i<r; i++)
 {
 for(j=0; j<c; j++)
{
```

```
(*(*ad+i)+j) = (*(*(a+i)+j) + *(*(b+i)+j));
    }
  }
  return (ad);
}
int *Sub(int (*a)[3], int (*b)[3], int r, intc)[3][3]
{
 int i,j; static int Subr[3][3];
  for(i=0;i<r;i++)
  {
 for(j=0;j<c;j++)
  {
 sb[i][j] = a[i][j] - b[i][j];
    }
  }
 return(sb);
  }
```

12) b)

```
#include<stdio.h>
#include<conio.h>
int *transpose(int [][3], int, int);
void main()
{
int a[3][3], r, c, i, j, *P;
scanf("%d%d", &r, &c);
 Printf("Enter matrix A");
for(i=0; i<r; i++)
{
for(j=0; j<c; j++)
{
 scanf("%d", (*(a+i)+j));
}}
}
```

```
P=transpose(a,r,c);
for(i=0;i<r;i++)
{
for(j=0;j<c;j++)
{
Printf("%d",*(P+i*r+j));
}
}
}
int *transpose(int a[][3],int r,int c)
 {
 int i,j,temp;
for(i=0;i<r;j++)
{
for(j=0;j<1;j++)
{
temp=a[i][j];
a[i][j]=a[j][i];
a[j][i]=temp;
}
}
return(a);
}
```

13) a)

```
#include<stdio.h>
#include<conio.h>
void join(char*,char*);
 void find(char*);
void replace(char*,char);
 void main()
{
char jet[]="IAF Mirage-2000";
WingCommander="Abhinandan Varthaman";
```

```
join (jet, wing(arrow));
 ting(jet);
 replace (jet ,'- ');
  }
void join(char *a, chark b)
{
int i ; char a1[50]; int i=0 ;
while (*a)
{
 a1[i++] =*a ;
   a++;
 }
while (*b)
 {
  a1[i++] =*b;
   b++;
 }
 a1[i] ='\0' ;
Printf(" Concaterate String =:%s",a1);
}
void find (char *a)
 int  count =0;
{
 while (*a)
{
 if (! (isalpha (*a)))
 {
  count ++;
 }
 a++;
}
Printf ("No of non-alphabetic character =:s",count);
```

```
void replace (char *a ,char *)
 int flag =0;
{
  while (*a)
  {
if (*a == x)
{
  flag =1;
  break;
 }
 a++;
}
*a ='*';
Printf ("%s",a);
}
```

13) b)

```
#include <stdio.h>
#include <conio.h>
 void main()
 {
char name[60][30];
int  i, j, n, flg =0;

Printf ("Enter n");
scanf ("%d",&n);
Printf ("Enter the names");
for(i=0, (<n; i++)
{
scanf ("%s" ,name[i]);
}
for(i =0; i<n-1 ; i++)
{
 for(j =0; j <n ;) j++)
 {
if (!(strcmp(name[i],name[j]))
```

```
{
  Strcpy (temp ,name [i]);
   Strcpy (name[i], name[j]);
   Strcpy (name[j] , temp);
  }
 }
}
Printf("sorted names");
for (i=0;i<n;i++)
{
Printf ("\n%s" ,name[i]);
}
for (i=0; i<n; i++)
{
 if (strcmp (name[i] , search )=0)
 {
 Printf ("Name found %d ", i+1);
  flag =1;
  break ;
 }
}
if (flag ==0)
 {
 Print f ("Name not found");
 }
}
```

14) a)

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
Void main()
 {
```

```
float *ptr, sum= 0, temp;
 int n,i ,count =0;
Printf("Enter n");
 Scanf("%d",&n);
ptr=(float*) malloc (n *sizeof(float));
Printf ("Enter cutoff marks");
 for (i=0 ;i<n; i++)
 {
scanf ("%f",&ptr[i]);
 }
 for (i=0; i<n; i++)
  {
  sum = sum + ptr[i];
  }
Printf("Average cutoff =%f", sum );
for (i=0;i<n-1;i++)
{
for(j= i+1 ;j<n;j++)
{
if (ptr[i] > ptr[j])
 {
 temp= ptr[i];
  ptr[i]=ptr[j];
  ptr[j]= temp;
  }
 }
}
Printf("Minimum cuff =%f",ptr[0]);
Printf ("Maximum cutoff =%f", ptr[n-1]);
for(i=0;i<n ;i++)
 {
 if (ptr[i] > 190.0)
  {
  count ++;
 }
}
Printf ("Count >190 =%d", count);
```

15) b)

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

struct Complex;
 {
 float real ,img;
} c1, c2, sub;

void main ()
{
Printf ("Enter the first complex number");
 scanf ("%f %f",&c1.real , &c1.img);
 Printf ("Enter second complex number");
 scanf("%f %f",&c2.real , &c2.img);
Sub.real = c1.real - c2.real;
Sub.img = c1.img - c2.img;
Printf ("Complex No substraction");
Printf("%f+i %f", sub.real , sub.img);
}
```

PART - C

16) a)

```
#include <stdio.h>
#include <conio.h>
 struct book;
{
long int isbn;
char title[40] author[30];
 Publisher[30];
int price;
}temp;
```

```
void main ()
{
char a[40] ;
 int flag =0;
struct book b[100]; int n,i ,j);
 Printf (" Enter the no. of books");
 scanf ("%d" ,&n);
for (i=0 ; i<n ;i++)
{
 scanf ("%d ", &b[i] .isbn);
scanf ("%s %s %s", s[i].title ,s[i].authen ,
                   s[i].Publisher);
scanf ("%d",&s[i] Price);
}
 for(i=0; i <n+1;i++)
  {
   for(j=i+1 ; j<n;j++)
  {
  if (strcmp(s[i].title ,s[j].title )>0)
  {
   temp = s[i];
   s[i] = s[j],
   s[j] = temp;
    }
   }
}
Printf ("Enter the title of the Book");
 scanf ("%s", a);
 for(i=0; i<n;i++)
  {
   if(strcmp(s[i].title,a) ==0))
    {
     flag = 1;
  }break;
}}
```

```
if (flag ==1)
{
Printf ("BOOK is found");
Printf ("\n\t %d \t %s \t %s \t %d",
        S[i] isbn ,S[i].title ,S[i] author,
         S[i].Publisher  ,S[i], Price);
 }
if (flag ==0)
 {
 Printf("Book not found");
  }
}
```

16) b)

```
#include<stdio.h>
#include<conio.h>
struct bank
 {
  long int accno;
  int balance;
 }c;
void deposit(struct bank *int);
void withdraw (struct bank * ,int);
void display (struct bank *);

void main ()
 {
  int   amt;
Printf ("Enter details");
scanf ("%d %d", &c.accno ,& c. balance);
Printf ("Enter the amount to desposited");
  Scanf ("%d" ,&amt);
```

```
desposit (&c, amt );
Printf ("Enter the amount to withdrawn");
 Scanf ("%d", &amt);
With draw (&c ,amt);
display (&c);
{
}
void desposit (struct bank *c , int amt)
 {
   balance    = balance +amt ;
 }
With draw (struct bank *c , int amt)
 {
   balance    = balance- amt;
 }
Void display (struct bank *c)
{
Printf ("ACC NO : %ld", accno.);
Printf ("in Bal :%d ", balance);
 }
```

18CSR062
N. Induja

1. perform matrix multiplication by dynamically allocating the memory for matrices.

2. perform string manipulation using pointers.

3. Find the rank of the student where the details are stored in structures for n students.

4. Sort the names of your class students in alaphabetical order.

Answer:-

65/100

Sahi

```
1. #include<stdio.h>
   #include<conio.h>
   void main()
   {
       int i, n, j, **a, r1, c1, r2, c2, **b, **c;
       clrscr();
       printf("Enter the row and columns");
       scanf("%d %d %d %d", &r1, &c1, &r2, &c2);
       if (c1 == r2)
       a = (int **) calloc (r1, sizeof(int *));
       for(i=0; i<r1; i++)
       {
         a[i]: (int *) calloc (c1, sizeof(int));
       }
       for(i=0; i<r1; i++)
       { for(j=0; j<c1; j++)
```

```
    {
      scanf("%d", *(a+i)+j);
    }
  }
b = (int**)calloc(r2, sizeof(int*));
for(i=0; i<r2; i++)
{
  b[i] = (int*)calloc(c2, sizeof(int));
}
Printf("Enter the b matrix");
For(i=0; i<r2; i++)
{
  for(j=0; j<c2; j++)
  {
    scanf("%d", *(b+i)+j);
  }
}

c = (int**)calloc(r1, sizeof(int*));
for(i=0; i<r1; i++)
{
  c[i] = (int*)calloc(c2, sizeof(int));
}
printf("The matrix multiplication is
for(i=0; i<r1; i++)
{
  for(j=0; j<c2; j++)
```

```
{
  for(k=0;k<r2;k++)
  {
  *(*(c+(i))+j)=*(*(a+(i))+j)+*(*(a+(k))+j)
                              * *(*(b+(i))+k));

  }

}
}
for(i=0;i<r1;i++)
{
 for(j=0;j<c2;j++)
 {
   printf("%d\t",*(*(c+(i))+j));
 }
 printf("\n");
}
getch();
}
```

Structure to store details of n students

```
#include<stdio.h>
#include<conio.h>
struct student
{
    int rollno[30];
    char name[30];
}s1[20]
```

```
struct marks
{
    int chem. phy. maths. eng;
} S2[30];
} S1[30];
void main()
{
int i, n, S[i]→total.
clrscr();
Printf("Enter the number of students
Scanf("%d", &n);
printf("Enter the details of the
                        students
For(i=0; i<n; i++)
{
printf("Enter roll-no");
Scanf("%d", S1[i]→roll-no);
printf("Enter the name");
Scanf("%s", S1[i]→name);
printf("Enter the chem mark");
Scanf("%d", S1[i].S2[i]→chem);
printf("Enter the phy mark");
Scanf("%d", S1[i]→S2[i]→Phy);
printf("Enter the maths mark");
Scanf("%d", S1[i]→S2[i]→maths
printf("Enter the eng mark");
Scanf("%d", S1[i]→S2[i]→eng);
}
```

```
for(i=0;i<n;i++)
{
 S[i]->total = S1[i]-> S2[i].chem + S2[i].
                S2[i].phy + S1[i].S2[i].maths
               + S1[i].S2[i].eng ;

}

if (strcmp (S[i]->total , S[j]->total
for(i=0; i<n-1 ; i++)
{
  for (j=i+1 ;j<n; j++)
  {
      if (S[i]->total.S[j]->total>0)
      {
          temp = S[i]->total
          S[i]->total = S[j]->total
          S[j]->total = temp
      }
  }
}
printf (" The marks are arranged
        according to the ranks");
printf (" %d". S[j]->total);
getch();
}
```

4. Sorting of names :-

```
# includi <stdio.h>
# include <conio.h>
void main()
{
  int **name, i, j, n
```

```
clrscr();
printf("Enter the maximum number of students\n");
scanf("%d", &n);
printf("Dynamic memory allocation for names");

name = (int **) calloc(n, sizeof(int*));
for(i=0; i<n; i++)
{
name[i]= (int **) calloc(n, sizeof(int));
}
for(i=0; i<n; i++)
{
 scanf("%s", name[i]);
}

for(i=0; i<n-1; i++)
{
  for(j=i+1; j<n; j++)
   {
        if (strcmp(name[i], name[j]<
          {
             temp= name[i];
            name[i]= name[j];
            name[j]= temp;
          }
   }
 } printf("The sorted array is\n");
printf("%s", name[j]);
getch();
}
```

A. Kaaviyaa
18CSR071

1. Perform matrix multiplication by dynamically allocating the matrices.
2. Perform string manipulation using pointers.
3. Find the rank of the student where the details are stored in structure for n student. (6 marks)
4. Short the names of your class student in alphabetical order.

4-7

60/100

```
① #include <stdio.h>
  #include <conio.h>
  Void main()
  {
     int **a, **b, **c, i, j, r1, r2, c1, c2;
  clrscr();
  printf("enter the rows and colms");
  Scanf("%d %d %d %d", &r1, &c1, &r2, &c2);
     a = (int **) malloc (r1, size of int(*));
     b = (int **) calloc (r2, size of int(*));
     c = (int **) calloc (r1, size of int(*));
  for(i=0; i<r1; i++)
    {
    a[i] = (int *) malloc (c1, size_of int));
    }
  for(i=0; i<r2; i++)
  {
   b[i] = (int *) calloc (c2, sizeof int));
  }
```

```
for(i=0;i<r1;i++)
 {
  c[i] = (int *) calloc (c1, sizeof int));
 }

for(i=0; i<r1; i++)
 {
  for(j=0;j<r2;j++)
 {c[i] =
  Scanf ("%d", a[i][j]);
  }
  }
for(i=0; i<r1; i++)
 {
  for(j=0; j<r2; j++)
  {
  Scanf("%d", b[i][j]);
  }
  }
for(K=0; K<r1; K++)
 {
  for(j=0; j<r2; j++)
  {
  c[i][j] = c[i][j] + a[i][j] * b[i][j]
  }
}
  printf(" %d", c[i][i]
getch();
}
```

8.
```
#include<stdio.h>
#include<conio.h>
void main()
{
    int a int n, i, j;
    char a[10]; t, f, temp;
    clrscr();
    printf("enter the no of students");
    scanf("%d", &n);
    printf("enter the names");
    scanf("%c", &a[i]);
    if(a[i]<a[j])
    {
    for(i=0; i<n; i++)
    {
    for(j=i+1; j<n; j++)
    {
    temp = a[i];
    a[i] = a[j];
    a[j] = temp;
    }
    }
    printf("enter the names in alphabetical
                                    order");
    printf("%c", a[i]);
    }
    getch();
}
```

Output

enter the no. of students = 3

Kalai

Abi

priya

alphabetical order.

Abi

Kalai

priya.

3.
```
#include<stdio.h>
#include<conio.h>
Struct student
{
  int n, mark ;
  char name ;
};
Void main( )
{
  int i, sum[i] =0, temp
  clrscr( );
  printf(" enter the no of students");
  Scanf("%d", &n);
  printf (" enter the students");
  printf (" enter the marks");
  Scanf (" %d %d %d %d %d %d ", &m1, &m2, &m3, &m4,
                                &m5, &m6);
for(i=0;i<n; i++)
  {
  sum[i] = m1 + m2 + m3 + m4 + m5 + m6 ;
  printf(" enter the sum marks %d", sum[i]);
}
```

```
if ( S[i] < S[j] )
  {
  for(i=0 ; i<n-1 ; i++)
  {
  for(j=i+1; j<n ; j++)
  {
  temp  = S[i];
  S[i] = S[j];
  S[j] = temp;
  }
  }
  printf("the marks are %d", S[i]);
}
for(i=0, i<n; i++)
{
  S[i] = i+1 ;
  i++;
  }
  printf ("the rank is %d"; S[i]);
  }
  getch();
}.
```

Output :

enter the no of students = 8
enter the marks 90, 90, 95, 90, 95, 90
Sum = 550 = 2nd rank
enter the marks 95, 95, 100, 100, 90, 95
Sum = 575 = 1st rank