Program 7

```
#include<stdio.h>
#include<stdlib.h>
// capacity is taken as m
int max(int a,int b)
{
	return (a>b?a:b);
}

void Knapsack(int n,int m, int w[20],int V[20][20],int p[20])
{
	int i,j;
	for (i=0;i<=n;i++)
	{
		for (j=0;j<=m;j++)
		{
			if (i==0||j==0)
			{
				V[i][j]=0;
			}
			else if (j < w[i])
			{
				V[i][j]=V[i-1][j];
			}
			else
			{
				V[i][j]=max(V[i-1][j], p[i]+V[i-1][j-w[i]]);
			}
			printf("%d\t",V[i][j]);
		}
		printf("\n");
	}
}

void ItemsOfOptimal(int n,int m,int w[20],int V[20][20])
{
	int i,j;

	if (V[n][m]==0)
	{
```

```
            printf("Not possible!");
            return;
      }
      printf("Optimal solution is :%d\n",V[n][m]);

      i=n;
      j=m;
      printf("Objects selected: ");
      while (i!=0 && j!=0)
      {
            if (V[i][j]!=V[i-1][j])
            {

                  printf("\n%d",i);
                  j=j-w[i];
            }
            i=i-1;
      }
      printf("\n");
}

int main()
{
      int m,n,i,j,p[20],w[20],v[20][20];
      printf("Enter no. of objects:");
      scanf("%d",&n);
      printf("Enter weight of %d objects:",n);
      for (i=1;i<=n;i++)
            scanf("%d",&w[i]);
      printf("Enter Profits/values:");
      for (i=1;i<=n;i++)
            scanf("%d",&p[i]);
      printf("Enter capacity:");
      scanf("%d",&m);
      Knapsack(n,m,w,v,p);
      ItemsOfOptimal(n,m,w,v);
}
```