APPENDIX - IV(A)
###############

C-PROGRAM FOR SECTION [4.5]

SIMULATION STUDY OF COOKE'S AND ALTERNATIVE GENERAL PROCEDURE
****

```
#include <stdio.h>
#include <math.h>
#include <stdlib.h>
#include <time.h>
#include <conio.h>
#include <ctype.h>
#define DASH "_____"
void main()
{
  float f,f1,f2,f3,min,max,j,k,lar,h,h1,theta,los,los1,los2,x,a,b,h2[100];
  int c=0,p,l,r,o=0,u=0,i=1,m,q=0,s=0,s1=0,s2=0;FILE *fp;
  char opr=' ';

  clrscr();
  printf ("\n Enter the parameter theta of U(0,theta) :- ");
  scanf ("%f",&theta);
  printf ("\n Enter the confidence level :- ");
  scanf ("%f",&los);
  printf ("\n Enter first-sample confidence level for alternative method :-");
  scanf ("%f",&los1);
  los2=1.0-(1.0-los)/(1.0-los1);
  fp = fopen ("y.txt","w+");
  fprintf(fp,"\n*SIMULATION STUDY OF COOKE'S AND ALT. GENERAL PROCEDURE");
  fprintf(fp,"\n THETA=%f WIDTH OF C.I = 1 THEO.COVERAGE =%f",theta,1.0-los);
  fprintf(fp,"\n FIRST-SAMPLE COVERAGE FOR ALT. PROCEDURE =%f",1.0-los1);
  fprintf(fp,"\n REQUIRED SECOND-SAMPLE COVERAGE =%f",1.0-los2);
  fprintf(fp,"\n %s",DASH);
  fprintf(fp,"\n\tFIRST-SAMPLE\tCOOKE'S \tALT.METHOD \tCOOKE'S \tALT.METHOD ");
  fprintf(fp,"\n \tSIZE \t  COVERAGE \t  COVERAGE \t    E(N)     \t     E(N)");
  fprintf(fp,"\n %s",DASH);

  do
     {
       printf ("\n Enter the size of FIRST-SAMPLE :- ");
       scanf ("%d",&m);
       randomize ();
```

```
        do
            { o++;l=l-1;
              lar = theta * random (32000)/32000.0;
              do
                  {
                    x = theta * random (32000)/32000.0;
                    if ( x >= lar) lar = x;
                    i++;
                   }while (i < m);


/* Cooke's Method */

              h = pow(los,1.0/(float)m);
              hl = h/(1.0-h);h2[0]=h2[1]=hl;
              if (lar < hl) l=1;
              else
                  {
                   do { l++;
                          for(j=.6;j<10;j+=.0001)
                              { f3=0.0;r=0;
                                a=j+1.0;b =j/a;
                                f1=pow(a,m+1);
                                f2 = pow(b, m+1);f3=pow(h2[0],m);
                                do
                                    { r++; k = pow(b,r);
                                      f3 += k*pow(h2[r],m);
                                     }while(r < l-1);
                                f = fabs (f3/f1+f2-los);
                                if ( f <= .000001)  h2[l]=j;
                              }
                     }while(lar > h2[l]);
               }
              max = lar;
              s1+=l;
              do
                  {
                     x = theta * random (32000)/32000.0;
                     if ( x >= max) max = x;
                     u++;
                   }while (u < l);
              if (max < theta && theta < max +1.0) s += 1;

/* Alternative General Procedure */

              if (lar/pow(los1,1.0/(float) m) <= 1) p=0;
              else
                    { a=log(los2);b=lar/pow(los1,1.0/(float) m);
                      p=(int) (a/log(1.0-1.0/b)) + 1;
                     }
              min = lar;s2+=p;
```

```
                do
                    {
                     x = theta * random (32000)/32000.0;
                     if ( x >= min) min = x;
                     c++;
                    }while (c < p);
                if ( min < theta && theta < min +1.0) q+=1;
                i=1;c=0;u=0;
              }while ( o <= 1000);

        fprintf(fp,"\n \t   %d  \t     %f  \t   %f \t  %f \t
              %f",m,s/1000.0,q/1000.0,s1/1000.0+m,s2/1000.0+m);
        o=0;s=0;s1=0;s2=0;q=0;
        getch();
        clrscr();
        fflush(stdin);
        printf("\n Do you want to continue SIMULATION STUDY,if YES type y :-");
        scanf("%c",&opr);
     }while( opr == 'y');

 fprintf(fp,"\n %s",DASH);
 fclose(fp);

}


/* PROGRAM END */
```

APPENDIX - IV(B)
################

C-PROGRAM FOR SECTION [4.5]

BEST POSSIBLE SECOND-SAMPLE CONF. LEVEL FOR
GENERAL PROCEDURE WHICH MINIMISES ASN

```
#include <stdio.h>
#include <math.h>
#include <stdlib.h>
#include <time.h>
#include <conio.h>
#include <ctype.h>
#define DASH "_____________________________________________________________"
void main()
{
  float lar,theta,los,los1=0.05,los2=0.0,x,a,b;
  int r,o=0,i=1,m,s2=0;FILE *fp;

  clrscr();
  printf ("\n Enter the parameter theta of U(0,theta) :- ");
  scanf ("%f",&theta);
  printf ("\n Enter the confidence level :- ");
  scanf ("%f",&los);
  printf ("\n Enter the size of FIRST-SAMPLE :- ");
  scanf ("%d",&m);

  fp = fopen ("b.txt","w+");
  fprintf(fp,"\n * SIMULATION STUDY OF ALTERNATIVE GENERAL PROCEDURE");
  fprintf(fp,"\nTHETA=%f WIDTH OF C.I=1 THEO.COVERAGE =%f",theta,1.0-los);
  fprintf(fp,"\n \t FIRST-SAMPLE SIZE =%d",m);
  fprintf(fp,"\n %s",DASH);
  fprintf(fp,"\n First-sample Cov. Second-sample Cov. E(N)");

  do
      { los1 = los1 - 0.001;
        los2 = 1.0 - (1.0-los)/(1.0-los1);
        randomize ();
      do
        { o++;
            lar = theta * random (32000)/32000.0;
            do
              {
                  x = theta * random (32000)/32000.0;
                  if ( x >= lar) lar = x;
                  i++;
              }while (i < m);
```

```
/* Alternative General Procedure */
        if (lar/pow(los1,1.0/(float) m) <= 1) r=0;
        else { a=log(los2);b=lar/pow(los1,1.0/(float) m);
        r=(int) (a/log(1.0-1.0/b)) + 1;}
        s2+=r;
        i=1;
       }while ( o <= 1000);
      fprintf(fp,"\n %f  %f %f ",1.0-los1,1.0-los2,s2/1000.0+m);
      o=1;s2=0;
 }while( los1 >= .01);

 fprintf(fp,"\n %s",DASH);
 fclose(fp);
 getch();
 clrscr();
 fflush(stdin);

} /* PROGRAM END */
```