5 APENDICES

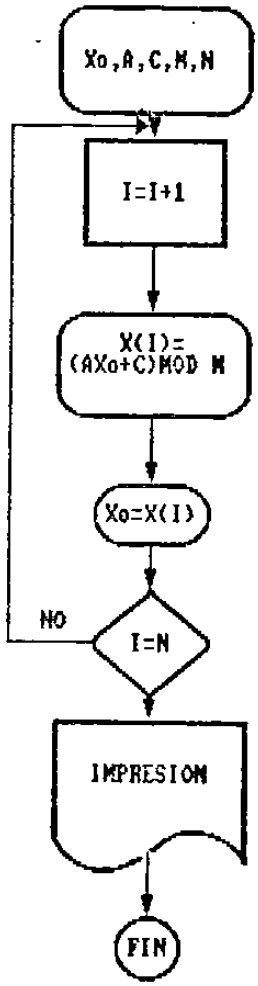


FIGURA # 1

GENERADOR DE NUMEROS ALEATORIOS.

VARIABLES:

Xo,A,C,N,M = CONSTANTES.

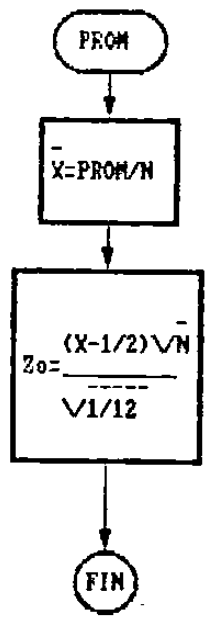


FIGURA # 2

PRUEBA DE PROMEDIOS.

VARIABLES:

PROM =SUMA DE LOS NUMEROS

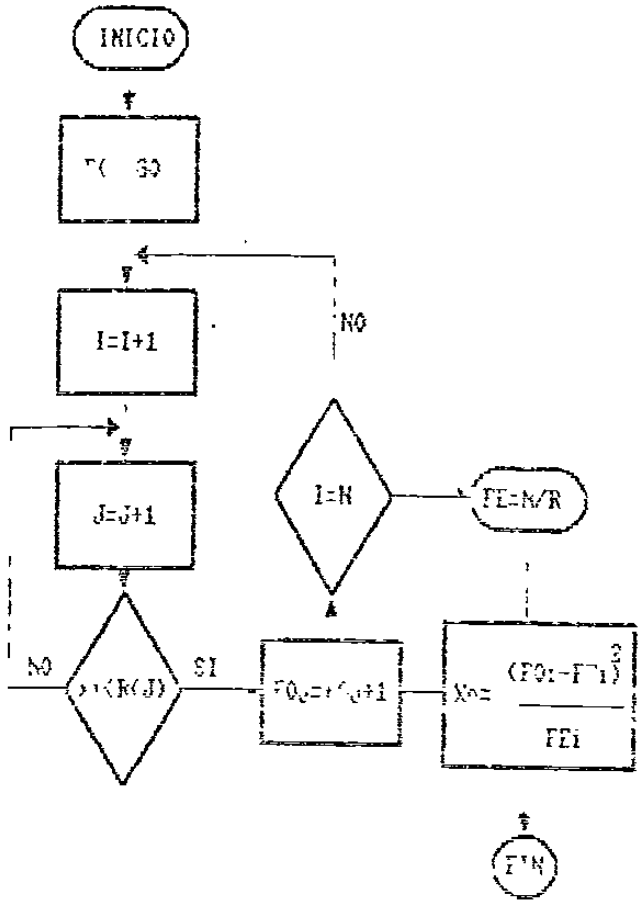


FIGURA # 3

PRUEBA DE FRECUENCIAS

FIGURA # 4

PRUEBA DE LA DISTANCIA

VARIABLES:

a,b,g = CONSTANTES.

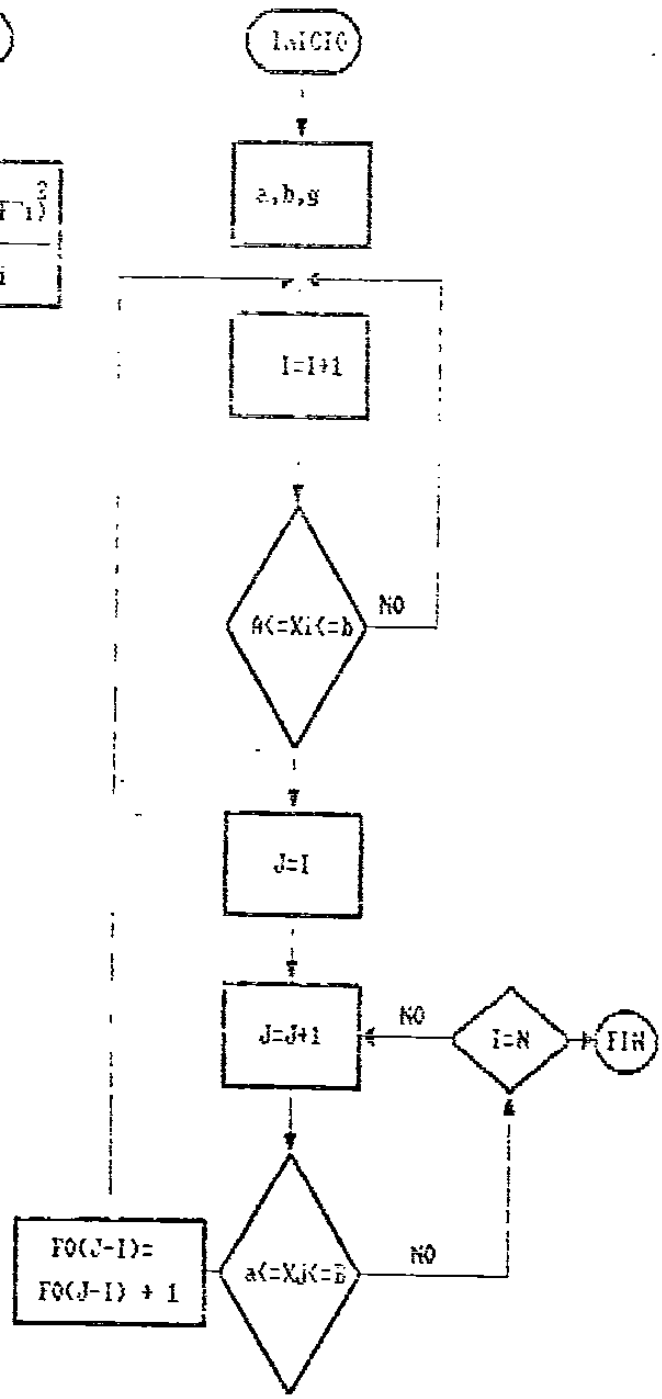
VARIABLES

N=SERIE GENERADA

R=NUMERO DE SUB-INTERVALOS

FO=FRECUENCIA OBSERVADA

FE=FRECUENCIA ESPERADA



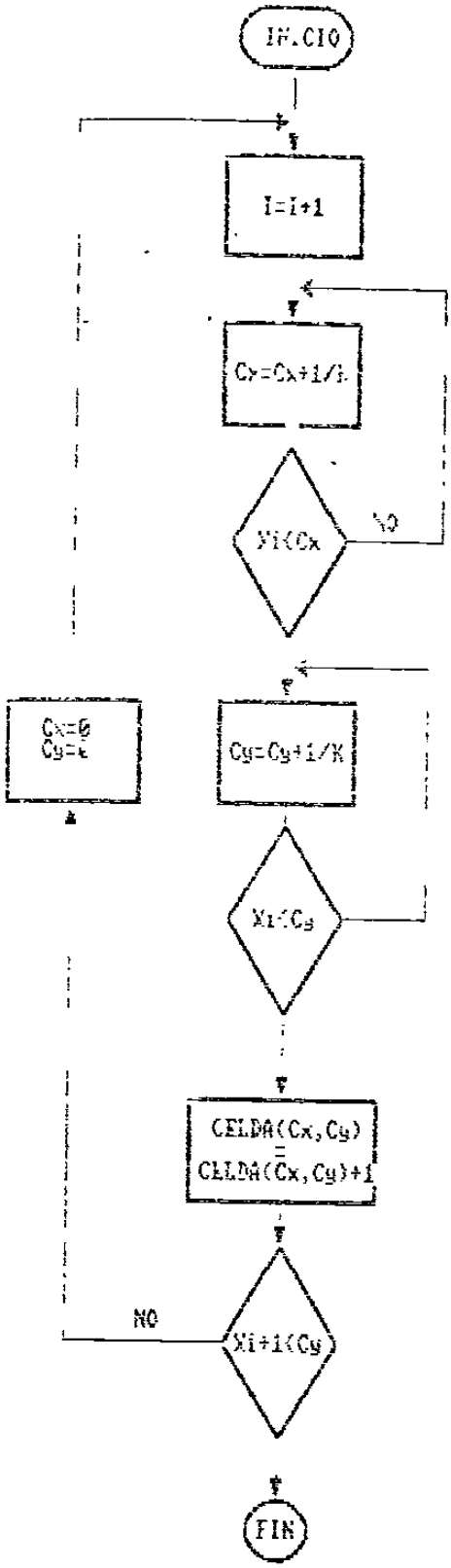


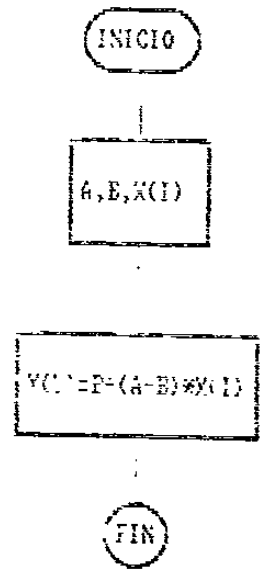
FIGURA # 5

TEST ESPACIAL SERIES.

VARIABLES: Cx=COORDENADA X
Cy=COORDENADA Y
K= NUMERO DE CELDAS

FIGURA # 6

GENERACION UNIFORME



VARIABLES:

A= LIMITE SUPERIOR

B= LIMITE INFERIOR

X(I)=VARIABLE UNIFORME

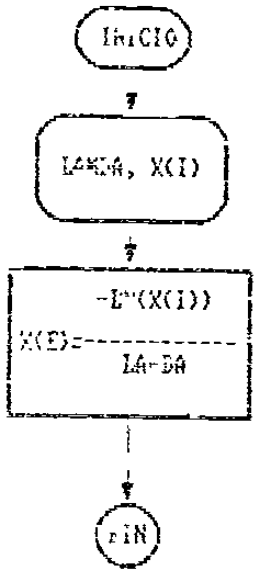


FIGURA # 7

DISTRIBUCION EXPONENCIAL

VARIABLES:

-

LAMDA=PARAMETRO DE LA DISTRIBUCION.

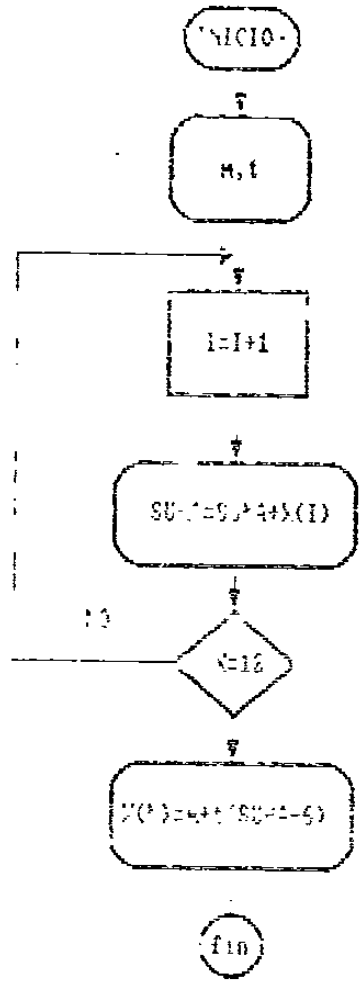


FIGURA # 8

DISTRIBUCION NORMAL.

VARIABLES:

M = MEDIA

t = DESVIACION ESTANDAR

```
DIM N(60)
DIM RA(60)
DIM PR(70)
10 REM rutina para entrada de datos.
20 KEY OFF
30 CLS
40 SCREEN 2
50 LINE (4,4)-(636,196),,B
60 LINE (8,8)-(316,96),,B
70 LINE (320,8)-(632,96),,B
75 LINE (28,118)-(276,168),,B
76 LOCATE 14,10:PRINT "PRUEBA DE FRECUENCIAS"
80 LINE (8,100)-(316,192),,B
85 LINE (370,36)-(584,72),,B
86 LOCATE 2,51:PRINT "PRUEBA DE DISTANCIA"
90 LINE (320,100)-(632,192),,B
93 LOCATE 14,52:PRINT "PRUEBA DE SERIES"
95 LINE (370,116)-(584,166),,B
100 LOCATE 3,3:PRINT "GENERADOR MIXTO DE NUMEROS ALEATORIOS"
110 LOCATE 4,3:PRINT "--------- ----- -- ------- ----------"
120 LOCATE 5,5:PRINT "SEMILLA="
130 LOCATE 6,5:PRINT "MULTIPLICADOR="
140 LOCATE 7,5:PRINT "CONSTANTE ADITIVA="
150 LOCATE 8,5:PRINT "MODULO="
160 LOCATE 9,5:PRINT "NUMEROS A GENERAR (0,56)="
170 LOCATE 5,14:INPUT ;XK
180 LOCATE 6,20:INPUT ;AM
190 LOCATE 7,24:INPUT ;CQ
200 LOCATE 8,13:INPUT ;MOLO
210 LOCATE 9,29:INPUT ;ELE
220 LOCATE 11,5:INPUT "ALGUN CAMBIO (S/N)=";Y$
230 IF Y$="S" THEN GOTO 30
240 VIEW SCREEN (9,9)-(315,95)
250 CLS:SCREEN 2
260 FOR I=1 TO ELE
270 GOSUB 60000
275 N(I)=ENE
280 NEXT I
290 REM SERIE GENERADA
300 LOCATE 2,12:PRINT "SERIE GENERADA"
320 CLAVE=4
330 FOR I=1 TO 8
340 FOR J=1 TO 7:VECLA=VECLA+1
350 LOCATE CLAVE,4*J:PRINT N(VECLA)
360 IF VECLA>= ELE THEN GOTO 400
370 NEXT J
380 CLAVE=CLAVE+1
390 NEXT I
```

```
400 REM PRUEBA DE FRECUENCIAS
410 FOR I=1 TO ELE
420 FOR J=1 TO 4
430 IF N(I)<=(.25*J) THEN RA(J)=RA(J)+1: GOTO 450
440 NEXT J
450 NEXT I
460 LOCATE 14,10:PRINT "PRUEBA DE FRECUENCIAS"
480 LOCATE 16,6:PRINT "RANGO"
490 LOCATE 16,12:PRINT "FREC.OBSERV"
500 LOCATE 16,24:PRINT "FREC.ESPER"
520 FOR Z=0 TO 3
530 LOCATE 17+(Z+1),5:PRINT Z/4:LOCATE 17+(Z+1),9:PRINT "-"
535 LOCATE 17+(Z+1),10:PRINT (Z+1)/4
540 LOCATE 17+(Z+1),17:PRINT RA(Z+1)
550 LOCATE 17+(Z+1),27:PRINT ELE/4
560 NEXT Z
570 FOR Y=1 TO 4
580 X0=X0+(RA(Y)-(ELE/4))^2
590 NEXT Y
600 XUNO=2.72+1.63*(Y-1)
610 X0=X0/(ELE/4)
620 IF (X0 < XUNO) THEN LOCATE 23,3:PRINT INT(X0*10)/10"<"INT(XUNO*10)/10"==>
DISTR.ES UNIFORME":GOTO 640
630 LOCATE 23,3:PRINT INT(X0*10)/10">"INT(XUNO*10)/10"==>LA DIST.NO ES UNIFOR
640 REM PRUEBA DE LA DISTANCIA
680 LOCATE 4,48:PRINT "T.DE H."
690 LOCATE 4,56:PRINT "PROB"
700 LOCATE 4,62:PRINT "F.O."
710 LOCATE 4,69:PRINT "F.E"
720 TE=.4
730 FOR K=1 TO ELE
740 RA(K)=0:NEXT K
750 FOR I=1 TO ELE
760 IF (N(I)>=.3) AND(N(I)<=.7) THEN RA(I-SW)=RA(I-SW)+1:SW=I
800 NEXT I
820 RA(4)=RA(4)+RA(5)+RA(6)+RA(7)+RA(8)+RA(9)
830 SUMAT=RA(1)+RA(2)+RA(3)+RA(4)
835 LOCATE 6,50:PRINT "0":LOCATE 6,55:PRINT TE:LOCATE 6,62:PRINT RA(1)
838 LOCATE 6,68:PRINT TE*SUMAT
839 ESEO=(RA(1)-TE^2)/TE
840 FOR K=1 TO 3
850 PR(K)=TE*(1-TE)^(K)
860 PR(K)=INT(PR(K)*100)/100
870 PR(3)=1-(TE+PR(1)+PR(2))
880 FE(K)=PR(K)*SUMAT
890 LOCATE 6+K,49:PRINT K
900 LOCATE 6+K,55:PRINT PR(K)
910 LOCATE 6+K,62:PRINT RA(K+1)
920 LOCATE 6+K,68:PRINT INT(FE(K)*10)/10
930 ESEO=ESEO+(RA(K+1)-FE(K)^2)/FE(K)
940 NEXT K
```

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```
940 NEXT K
950 SUNO=2.72+1.63*(3)
960 IF ESEO<SUNO THEN LOCATE 11,47:PRINT INT(ESEO*10)/10"<"INT(SUNO*10)/10"==>
ASA LA PRUEBA":GOTO 1000
970 LOCATE 11,45:PRINT INT(ESEO*10)/10">"INT(SUNO*10)/10"=>NO PASA LA PRUEBA"
1000 REM PRUEBA DE SERIES.
1100 CTS=.2
1200 FOR I=1 TO ELE-1
1300 FOR J=1 TO 5.
1400 IF N(I)<=CTS*J THEN GOTO 1500
1450 NEXT J
1500 FOR K= 1 TO 5
1600 IF N(I+1)<=K*CTS THEN GOTO 1800
1700 NEXT K
1800 CEL(J,K)=CEL(J,K)+1
1900 NEXT I
1950 ARRE=1
2000 FOR I=5 TO 1 STEP -1
2100 LOCATE 15+ARRE,43:PRINT I/5
2125 ARRE=ARRE+1
2150 NEXT I
2180 FOR I=1 TO 5
2190 ARRE=1
2200 FOR J=1 TO 5
2300 LOCATE 15+I,44+5*ARRE:PRINT CEL(I,J)
2350 ARRE=ARRE+1
2400 NEXT J
2500 NEXT I
2600 LOCATE 22,50:PRINT".2  .4   .6   .8   1.0"
2700 FOR I=1 TO 5
2800 FOR J=1 TO 5
2900 SCE=SCE+(CEL(I,J)-((ELE-1)/25))^2
3000 NEXT J
3100 NEXT I
3200 XS=(25/(ELE-1))*SCE
3300 XCS=7.77+1.177*(((I-1)^2)-1)
3400 IF XS>XCS THEN GOTO 3700
3500 LOCATE 23,46:PRINT INT(XS)"<"INT(XCS)"==> PASA LA PRUEBA"
3600 GOTO 3900
3700 LOCATE 23,43:PRINT INT(XS)">"INT(XCS)"==> NO PASA LA PRUEBA"
3900 LOCATE 11,70:END
59000 END
60000 XN=(AM*XK+CQ)
60100 XP=XN/MOLO
60200 XQU=INT(XP)
60300 XW=(XP-XQU)*MOLO
60400 ENE=INT(XW)/MOLO
60500 XK=XW
60600 RETURN
```

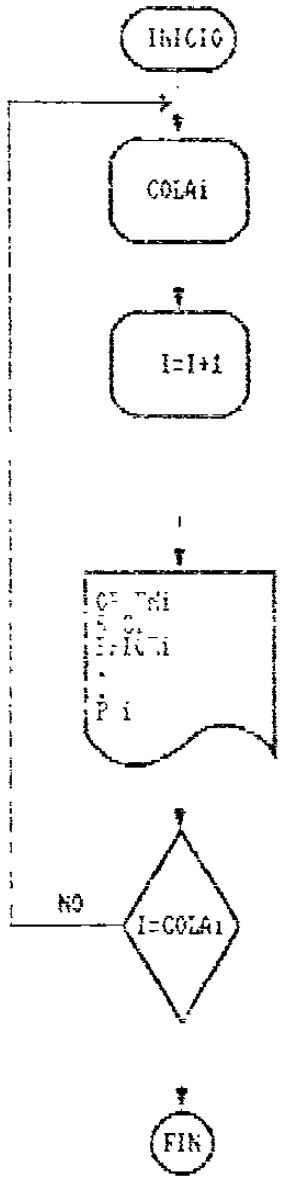
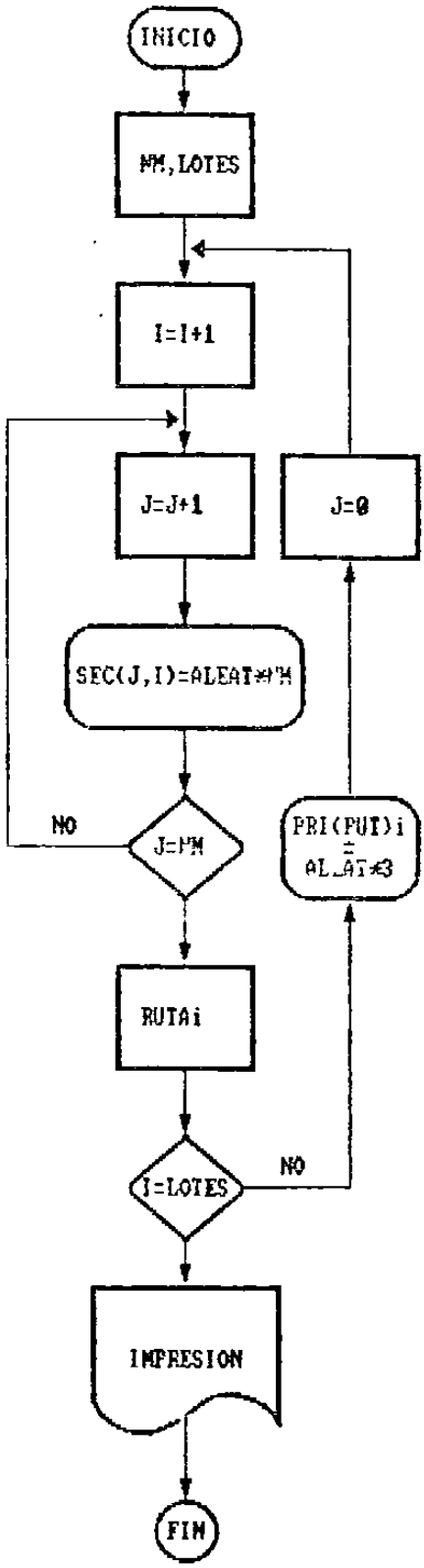


FIGURA # 9

MATRIZ DE INFORMACION



FIGUAR # 10

RUTAS Y PRIORIDADES.

VARIABLES:

NMAQ= NUMERO DE MAQUINAS.
LOTES= NUMERO DE LOTES SIMULADOS.
SEC(J,I)= SECUENCIA(JESIMA,DE LA ORDEN I)
RUTAi = RUTA IESIMA.
PRIOR = PRIORIDAD DE LA ORDEN.
ALEAT = NUMERO ALEATORIO.

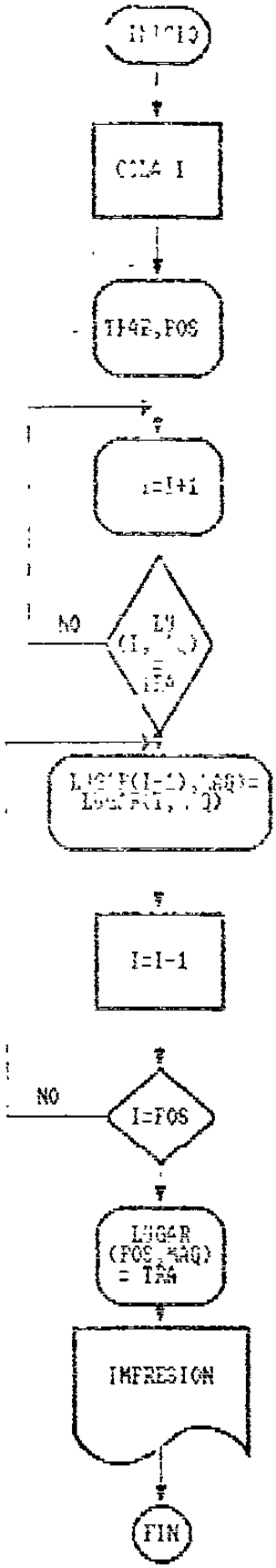


FIG.RA 4 11

CAMBIOS EN UNA MAQUINA

.A.1- .ES.

LI'E= TRAEAJO A C. LIGAR.

POS = .OSICION DE CAR.RA.

LUGAR(I,J)=CAR N QUE VOLVE EL IESIMO

LUGAR EN LA MAQ. J.

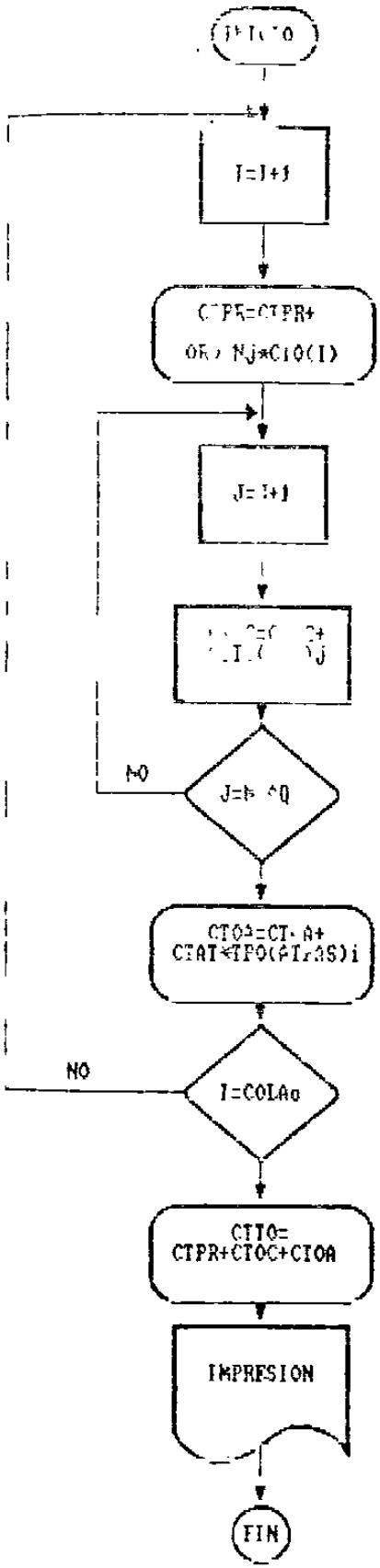


FIGURA N 12

[illegible] IA IS

VARIABLES:

CTPR [illegible] DE LOS [illegible] JOINO.

[illegible] TOTAL [illegible] CCIO.

[illegible] TOTAL DE OR[illegible] AT[illegible]AS.

CTTC=COSTO TOTAL DE PRODUCCION.

CTOO=COSTO POR U IDAD OCIOSA.

CIAT=COSTO POR DIA DE ATRASO

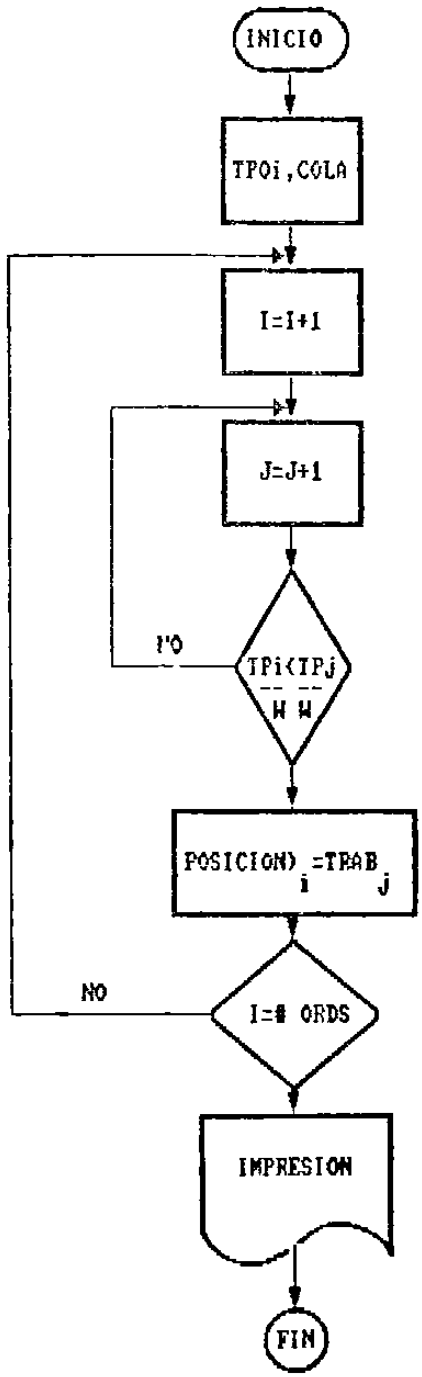


FIGURA # 13

METODOS DE SECUENCIACION.

MINIMO TIEMPO DE PROCESADO.

VARIABLES:

W = PRIORIDAD

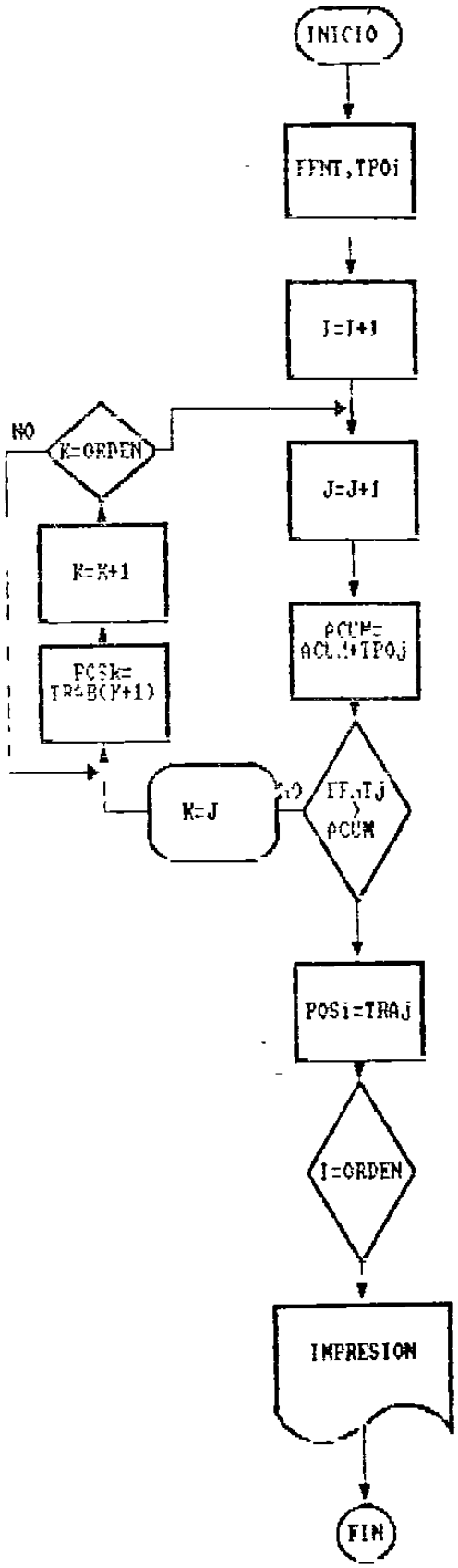


FIGURA # 14

METODOS DE SECUENCIACION

MIN. NUMERO DE ORDENES ATRASADAS.

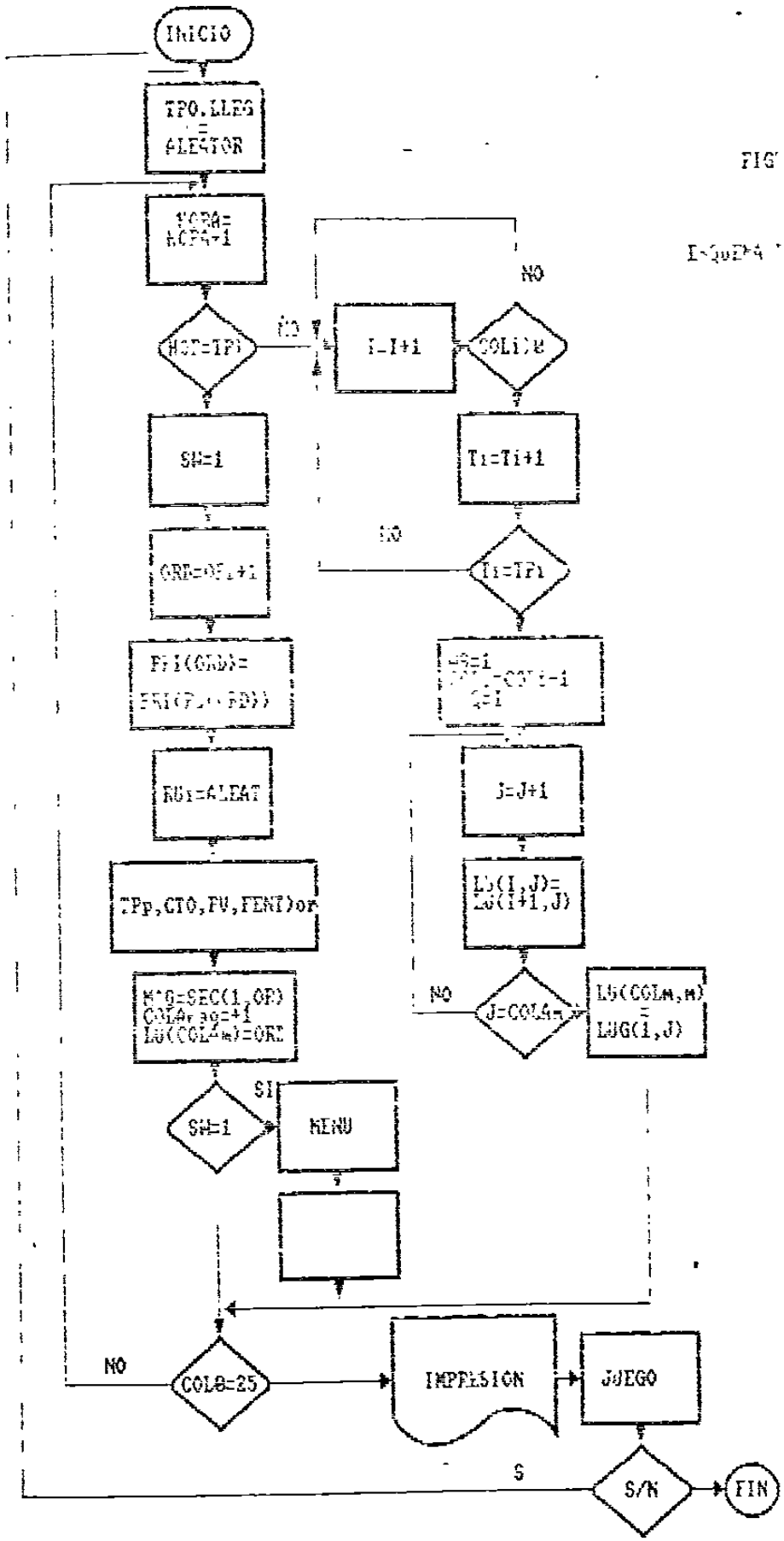
VARIABLES:

FFNT= FECHA DE ENTREGA.

ACUM= ACUMULADO DE TPOS. DE PROCESO.

FIGURA # 15

DIAGRAMA DEL SIMULADOR.



```
1000 EQUISK=123
1005 DIM AHO(15):DIM NOM$(15)
1010 XK=EQUISK
1020 AM=234
1030 CQ=345
1040 MOLO=10000
1900 CLS
1950 KEY OFF
2000 DIM SEC(60,5):DIM CES(60,5)
2005 DIM CTOA(3)
2010 DIM NIM(30):DIM XYZ(40)
2015 DIM YZX(30):DIM ACOM(40,5)
2016 DIM ARREG(30)
2018 DIM ACDO(30)
2020 DIM SW1(51):DIM R(51)
2030 DIM SPRI(51,5):DIM SSPR(51,20)
2040 DIM PTO(40):DIM P(51)
2050 DIM ACU(40):DIM LU(51,5)
2060 DIM UCA(50,10):DIM POCO(20)
2063 DIM K(5):DIM T(5):DIM NUEVA(20)
2070 DIM EFR(5):DIM FREN(5)
2080 DIM TMAX(5):DIM TMIN(5)
2085 DIM CSE(60,5):DIM TRESP(50)
2090 DIM CMAX(5):DIM CMIN(5)
2100 DIM FENT(60):DIM ATR(60)
2110 DIM CTO(60,5):DIM TP(60,5)
2120 DIM PV(60):DIM HU(60,5)
2130 DIM ZP(60):DIM OC(5)
2140 DIM MEDT(5):DIM VART(5)
2150 DIM LAMT(5):DIM MEDC(5)
2160 DIM VARC(5):DIM LAMC(5)
2170 DIM S$(60,5)
2175 DIM RTA(60)
2180 DIM P$(60,5):DIM Q$(60,5)
```

```
2340 CLS
2350 SCREEN 2
2353 IF ETIQ=1 THEN GOTO 2380
2355 LINE (179,50)-(421,75),,B
2360 LOCATE 8,24:INPUT"NUMERO DE MAQUINAS (1-4)=";NMAQ
2368 CLS
2370 IF (NMAQ>4)OR(NMAQ<=0) THEN  BEEP: GOTO 2355
2371 LINE (240,80)-(400,120),,BF
2372 LOCATE 12,34:PRINT"GENERANDO RUTAS"
2373 LOCATE 14,38:PRINT"ESPERE"
2380 LOT=40
2390 DIS=100/(NMAQ+1)
2400 FOR I=1 TO LOT
2410 P(I)=3
2420 GOSUB 60000
2430 Y=INT(X*100)
2440 IF Y<20 THEN P(I)=1
2450 IF Y>70 THEN P(I)=2
2460 FOR J=1 TO NMAQ
2470 GOSUB 60000
2480 RO=INT(X*100)
2490 FOR K=1 TO NMAQ+1
2500 IF (RO>=(K-1)*DIS)AND(RO<K*DIS) THEN MAQ=K-1
2510 CES(I,J)=MAQ
2520 NEXT K
2530 IF (CES(I,1)<>0) AND (CES(I,J)=0) THEN GOTO 2570
2540 IF (CES(I,1)=0) OR (CES(I,J-1)>=CES(I,J)) THEN GOTO 2470
2550 IF (CES(I,J)=0) OR (J=NMAQ) OR(CES(I,J)=NMAQ) THEN GOTO 2570
2560 NEXT J
2570 NEXT I
2580 FOR I=1 TO LOT:SW1(I)=0:NEXT I
2590 A=0
2600 FOR I=1 TO LOT
2610 IF SW1(I)=1 THEN GOTO 2730
2620 A=A+1:FOR N=1 TO NMAQ:CES (A,N)=CES(I,N):NEXT N
2630 SPRI(A,P(I))=1
2640 R(A)=1
2650 FOR J=I TO LOT
2660 FOR K=1 TO NMAQ
```

```
2670 IF SW1(J+1)=1 THEN GOTO 2720
2680 IF CES(A,K)<>CES(J+1,K) THEN GOTO 2720
2690 NEXT K
2700 R(A)=R(A)+1:SPRI(A,P(J+1))=SPRI(A,P(J+1))+1
2710 SW1(J+1)=1
2720 NEXT J
2730 NEXT I
2740 FOR U=1 TO A
2750 FOR D=1 TO 3
2760 SSPR(U,D)=SSPR(U,D)+(((SPRI(U,D)/R(U))*100)/100)
2770 NEXT D
2780 NEXT U
2800 FOR J=1 TO A
2810 ACU=ACU+(R(J)/LOT)*100
2820 ACU(J)=ACU
2830 NEXT J
2840 FOR I=1 TO A
2850 FOR J=1 TO 3
2865 UCA=UCA+SSPR(I,J)
2870 UCA(I,J)=UCA
2875 NEXT J
2878 UCA=0
2880 NEXT I
2885 IF ETIQ=1 THEN GOTO 3010
2890 CLS
2900 GOSUB 26000
2950 ETIQ=0
2970 GOSUB 35000
3000 GOSUB 30000
3010 FOR I=1 TO 60:ZP(I)=1:NEXT I
3012 XK=EQUISK
3015 IF ETIQ=1 THEN GOTO 3070
3020 LOCATE 1,INT(7+X2):PRINT"ORDR"
3030 LOCATE 1,INT(10+X2+((NMAQ*5)/2)):PRINT"RUTA"
3040 LOCATE 1,INT(X2+((NMAQ+2)*5)+2):PRINT"PRIO"
3050 LOCATE 3,INT(X2+2):PRINT"LLE""
3060 LOCATE 5,INT(X2+2):PRINT"CAM"
3070 Z=1
3075 HORA=1
3080 FOR V=1 TO 1000
3083 E=0
3085 IF ETIQ=1 THEN GOTO 3135
3090 IF V/8=INT(V/8) THEN HORA=1
3095 LOCATE 23,11:PRINT"HORA"HORA:LOCATE 23,20:PRINT "DIA"INT(V/8)+1
3097 HORA=HORA+1
3099 E=0
3100 FOR K=1 TO NMAQ+2
3110 LOCATE 3,INT(X2+(K*5))+3+E:PRINT"  "
```

```
3120 LOCATE 5,INT(X2+(K*5))+3+E:PRINT"  "
3130 NEXT K
3135 LOT=5
3137 IF A1>=50 THEN GOTO 3150
3140 IF V=Z THEN A1=A1+1:SW=1:GOSUB 4000
3150 REM VARIACION FISICA EN COLA
3160 GOSUB 9000
3270 IF SW=1 THEN COMUN=SEC(A1,1):GOSUB 10010
3280 FOR Q=1 TO NMAQ
3290 IF K(Q)>0 THEN GOSUB 6000
3300 IF K(Q)=0 THEN OC(Q)=OC(Q)+1
3310 IF WS=1 THEN COMUN=UV:GOSUB 8000:GOSUB 9000:GOSUB 10000
3315 IF SWT=1 THEN COMUN=Q:GOSUB 9000:GOSUB 10000
3320 NEXT Q
3325 IF (ETIQ=1)AND(K(0)>=LOT) THEN GOTO 53000
3330 IF K(0)>=LOT THEN CLS:GOTO 49000
3340 NEXT V
3350 END
4000 REM INFORMACION AL LLEGAR ORDEN
4010 GOSUB 60000
4020 XB=INT(X*100)
4030 K=1
4040 WHILE XB>ACU(K)
4050 K=K+1
4055 WEND
4060 RTA(A1)=K
4070 FOR KS=1 TO NMAQ
4075 SEC(A1,KS)=CES(RTA(A1),KS)
4076 CSE(A1,KS)=CES(RTA(A1),KS)
4080 NEXT KS
4085 J=1
4090 WHILE SEC(A1,J)<>0
4095 GOSUB 5000
4100 J=J+1
4105 WEND
4110 GOSUB 60000
4120 L=1
4130 WHILE X>=UCA(RTA(A1),L)
4140 L=L+1
4145 WEND
4150 P(A1)=L
4160 FOR Y=1 TO NMAQ
4170 FENT(A1)=FENT(A1)+TP(A1,SEC(A1,Y))
4180 NEXT Y
4190 FENT(A1)=(V+FENT(A1)+3^P(A1))-1
4200 IF REF=1 THEN GOSUB 16000
4210 IF REF=2 THEN GOSUB 17000
4220 IF REF=3 THEN GOSUB 18000
4230 PVMAX=100:PVMIN=50
4240 GOSUB 60000
```

```
4250 PV(A1)=(PVMIN+(PVMAX-PVMIN)*X)+(PVMIN/(2*P(A1)))
4255 IF ETIQ=1 THEN GOTO 4330
4260 LOCATE 3,INT(7+X2):PRINT A1
4270 FOR K=1 TO NMAQ
4280 IF SEC(A1,K)<>0 THEN P$(A1,K)=STR$(SEC(A1,K))
4290 IF SEC(A1,K)=0 THEN P$(A1,K)=" "
4300 LOCATE 3,INT(X2+(K*5)+7):PRINT P$(A1,K)
4310 NEXT K
4320 LOCATE 3,INT(X2+(NMAQ*5)+12):PRINT P(A1)
4330 K(SEC(A1,1))=K(SEC(A1,1))+1
4340 LU(K(SEC(A1,1)),SEC(A1,1))=A1
4350 HU(A1,SEC(A1,1))=K(SEC(A1,1))
4355 CORI=1
4360 RETURN
5000 IF EFR(SEC(A1,J))=1 THEN GOSUB 19000
5010 IF EFR(SEC(A1,J))=2 THEN GOSUB 20000
5020 IF EFR(SEC(A1,J))=3 THEN GOSUB 21000
5030 IF FREN(SEC(A1,J))=1 THEN GOSUB 22000
5040 IF FREN(SEC(A1,J))=2 THEN GOSUB 23000
5050 IF FREN(SEC(A1,J))=3 THEN GOSUB 24000
5060 RETURN
6000 T(Q)=T(Q)+1
6010 IF T(Q)>=TP(LU(1,Q),Q) THEN GOSUB 7000
6020 RETURN
7000 REM CAMBIO ENTRE MAQUINAS
7010 T(Q)=0:K(Q)=K(Q)-1:WS=1
7015 CORI=1
7020 ZP(LU(1,Q))=ZP(LU(1,Q))+1
7030 SEC(LU(1,Q),ZP(LU(1,Q))-1)=0
7040 UV=SEC(LU(1,Q),ZP(LU(1,Q)))
7050 K(UV)=K(UV)+1
7060 LU(K(UV),UV)=LU(1,Q)
7070 G=LU(1,Q)
7080 HU(G,UV)=K(UV)
7085 IF (UV=0)AND(K(Q)>=3) THEN SWT=1
7090 IF UV=0 THEN ZP(LU(1,Q))=V:WS=0
7100 FOR L=1 TO K(Q)+1
7110 LU(L,Q)=LU(L+1,Q)
7120 NEXT L
7130 RETURN
8000 REM CAMBIO EN VECTOR CAMBIOS
8005 IF ETIQ=1 THEN RETURN
8010 LOCATE 5,INT(6+X2)+1:PRINT G
8020 FOR K=1 TO NMAQ
8030 IF SEC(G,K)<>0 THEN Q$(G,K)=STR$(SEC(G,K))
8040 IF SEC(G,K)=0 THEN Q$(G,K)=" "
8050 LOCATE 5,INT(X2+(K*5)+7):PRINT Q$(G,K)
8060 NEXT K
8070 LOCATE 5,INT(X2+(NMAQ*5)+12):PRINT P(G)
8080 RETURN
9000 FOR I=1 TO NMAQ
9005 IF ETIQ=1 THEN RETURN
9007 S$(1,I)="    "
```

```
9008 LOCATE 10,INT((XA*I)+(I*6)-3):PRINT S$(1,I)
9010 IF LU(1,I)<>0 THEN S$(1,I)=STR$(LU(1,I))
9020 IF LU(1,I)=0 THEN S$(1,I)="   "
9030 LOCATE 10,INT((XA*I)+(I*6)-3):PRINT S$(1,I)
9040 NEXT I
9050 FOR L=2 TO 11
9060 FOR M=1 TO NMAQ
9070 IF LU(L,M)<>0 THEN S$(L,M)=STR$(LU(L,M))
9080 IF LU(L,M)=0 THEN S$(L,M)="  "
9090 LOCATE 10+L,INT((XA*M)+(M*6)-3):PRINT S$(L,M)" "
9100 NEXT M
9110 NEXT L
9120 RETURN
10000 SWT=0
10005 WS=0:GOTO 10015
10010 SW=0
10015 IF ETIQ=1 THEN RETURN
10020 LINE (328.5,29.66)-(588.16,159.6),,B
10025 O$="N"
10030 LOCATE 6,43:PRINT"INF.SOBRE COLA" COMUN"          (I)"
10040 LOCATE 8,43:PRINT"RESULTADOS PARCIALES      (P)"
10050 LOCATE 10,43:PRINT"RUTAS GENERADAS           (R)"
10060 LOCATE 12,43:PRINT"GRAFICAS DE PROB. ACUM    (G)"
10070 LOCATE 14,43:PRINT"CAMBIOS EN MAQUINA" COMUN"     (C)"
10075 LOCATE 16,43:PRINT "METDS.DE SECUENCIACION    (M)"
10080 LOCATE 19,43:INPUT"OPCION <RET> PARA SALIR>=>";O$
10095 IF O$="N" OR O$="" THEN GOSUB 10500:RETURN
10097 GOSUB 30000
10100 IF O$="R" THEN GOSUB 12000
10110 IF O$="G" THEN GOSUB 11000
10115 IF O$="M" THEN GOSUB 25000
10120 IF O$="C" THEN GOSUB 15000
10130 IF O$="P" THEN GOSUB 14000
10140 IF O$="I" THEN GOSUB 13000
10145 GOSUB 30000
10170 GOTO 10020
10500 LINE (328.5,29.66)-(588.16,159.6),,B
10520 LOCATE 6,43:PRINT"INF.SOBRE COLA            (I)"
10530 LOCATE 8,43:PRINT"RESULTADOS PARCIALES      (P)"
10540 LOCATE 10,43:PRINT"RUTAS GENERADAS           (R)"
10550 LOCATE 12,43:PRINT"GRAFICAS DE PROB. ACUM    (G)"
10560 LOCATE 14,43:PRINT"CAMBIOS EN MAQUINA        (C)"
10565 LOCATE 16,43:PRINT "METDS.DE SECUENCIACION    (M)"
10570 LOCATE 19,43:PRINT"OPCION <RET> PARA SALIR>=>"
10600 RETURN
11000 REM GRAFICAS
11005 FOR I=0 TO A
11010 PTO(I)=(50+(ACU(I)/5))*8.33:NEXT I
11020 LOCATE 4,54:PRINT"PROBABILIDAD ACUMULADA"
11030 LOCATE 5,54:PRINT "----------- ---------"
11040 LINE (416.6,41.6)-(416.6,158.33)
11050 LINE (416.6,158.33)-(583.335,158.33)
11060 FOR J=1 TO A
```

```
11070 LOCATE 20-J,50:PRINT J
11080 NEXT J
11090 LOCATE 21,54: PRINT " 20  40  60  80  100"
11100 FOR I=0 TO A-1
11110 LINE (PTO(I),(19-I)*8.33)-(PTO(I+1),(19-(I+1))*8.33)
11120 NEXT I
11130 LOCATE 10,61:PRINT"NUMERO=";XB
11140 LOCATE 23,53:INPUT"<RET> PARA SALIR=>";RET$
11150 RETURN
12000 REM RUTAS Y PROBABILIDADES
12005 LINE (370.8,8.33)-(570.8,25),,B
12010 LOCATE 3,48:PRINT "RUTAS Y PROBABILIDADES"
12020 LOCATE 6,39:PRINT "RUTA"
12030 LOCATE 6,48:PRINT "SECUENCIA"
12040 LOCATE 6,64:PRINT "  1    2    3"
12050 LOCATE 5,66:PRINT "PRIORIDADES"
12060 LOCATE 7,38:PRINT " ----  ----------------    -    -    -"
12070 FOR J=1 TO A
12080 LOCATE 7+J,39:PRINT J
12090 FOR K=1 TO NMAQ
12100 LOCATE 7+J,39+K*5:PRINT CES(J,K)
12110 NEXT K
12140 FOR K=1 TO 3
12150 LOCATE 7+J,60+K*5:PRINT FIX((SPRI(J,K)/R(J))*100)/100
12160 NEXT K
12170 NEXT J
12180 LOCATE 23,50:INPUT"<RET> PARA SALIR";RET$
12190 RETURN
13000 REM INFORMACION AL OCURRIR EVENTO
13005 LINE (304,4)-(608,8*(10.5+(NMAQ*3))),,B
13010 LINE (304,28)-(608,28)
13020 FOR I=1 TO 3
13030 LINE(304,8*(3+((NMAQ+1)*I)))-(608,8*(3+((NMAQ+1)*I)))
13040 NEXT I
13060 LINE (400,4)-(400,8*(10.5+(NMAQ*3)))
13080 LOCATE 2,40:PRINT "No ORDEN"
13090 LOCATE 3,40:PRINT "PRIORIDAD"
13100 LOCATE 5,40:PRINT "SECUENCIA"
13110 LOCATE 6+NMAQ,40:PRINT "TIEMPOS"
13120 LOCATE 7+2*NMAQ,40:PRINT "COSTOS"
```

```
3130 LOCATE 8+3*NMAQ,40:PRINT "FECH.ENTR"
3140 LOCATE 9+3*NMAQ,40:PRINT "DIAS ATRS"
3150 LOCATE 10+3*NMAQ,40:PRINT "PREC.VTA"
3180 LIM1=1
3190 IF K(COMUN)<=6 THEN LIM2=K(COMUN)
3200 IF K(COMUN)>6 THEN LIM2=6
3210 E2=0
3220 FOR J=LIM1 TO LIM2
3222 E2=E2+1
3224 LOCATE 2,(48+(4*E2)):PRINT LU(J,COMUN)
3226 LOCATE 3,(48+(4*E2)):PRINT P(LU(J,COMUN))
3230 FOR K=1 TO NMAQ
3235 IF CSE(LU(J,COMUN),K)=0 THEN GOTO 13474
3240 LOCATE 4+K,(48+(E2*4)):PRINT CSE(LU(J,COMUN),K)
3250 LOCATE 5+NMAQ+K,(48+(E2*4)):PRINT FIX(TP(LU(J,COMUN),CSE(LU(J,COMUN),K))
3260 LOCATE 6+2*NMAQ+K,(48+(E2*4)):PRINT FIX(CTO(LU(J,COMUN),CSE(LU(J,COMUN),

3390 LOCATE 8+3*NMAQ,(48+(4*E2)):PRINT INT(FENT(LU(J,COMUN)))
3420 ATR(LU(E2,COMUN))=V-FENT(LU(J,COMUN))
3430 IF ATR(LU(E2,COMUN))<0 THEN ATR(LU(J,COMUN))=0
3435 XYZ=INT(V/8)+1-(INT(FENT(LU(J,COMUN))/8)+1)
3439 IF XYZ<0 THEN XYZ=0
3440 LOCATE 9+3*NMAQ,(48+(4*E2)):PRINT XYZ:ZYX=INT(ATR(LU(J,COMUN)))
3470 LOCATE 10+3*NMAQ,(48+(4*E2)):PRINT FIX(PV(LU(J,COMUN)))
3472 NEXT K
3474 NEXT J
3480 E=0
3481 FOR K=1 TO NMAQ+2
3482 LOCATE 3,INT(X2+(K*5))+3+E:PRINT"  "
3483 LOCATE 5,INT(X2+(K*5))+3+E:PRINT"  "
3484 NEXT K
3490 LOCATE 23,52:INPUT "<RET> PARA SALIR";RET$
3491 IF (J-1=K(COMUN))OR(J>=12) THEN GOTO 13500
3492 IF K(COMUN)>6 THEN GOSUB 13600 :GOTO 13210
3500 RETURN
3600 LIM1=7:E2=0
3650 IF K(COMUN)>12 THEN LIM2=12
3700 IF K(COMUN)<=12 THEN LIM2=K(COMUN)
3800 RETURN
4000 REM RESULTADOS PARCIALES
4005 LINE (308,50)-(590,152),,B
4010 LINE (333.3,50)-(583.33,50)
4020 LOCATE 5,44:PRINT "RESULTADOS PARCIALES"
4030 FOR K=1 TO K(0)
4032 CTOA(1)=20
4034 CTOA(2)=10
4036 CTOA(3)=5
4037 IF ZP(LU(K,0))<FENT(LU(K,0)) THEN GOTO 14050
4040 CTAT=CTAT+((ZP(LU(K,0)))-FENT(LU(K,0)))*CTOA(P(LU(K,0)))
4050 NEXT K
4060 FOR I=1 TO K(0)
4070 FOR J=1 TO NMAQ
4080 CTPR=CTPR+CTO(LU(I,0),J)
4090 NEXT J
```