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NP-Hard

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NP-Hard

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(SA)

(SA:2) (SA:1)

%

(MODM)

(SA:2) (SA:1)

(SA:1)

(MUMC)

(SA:3)

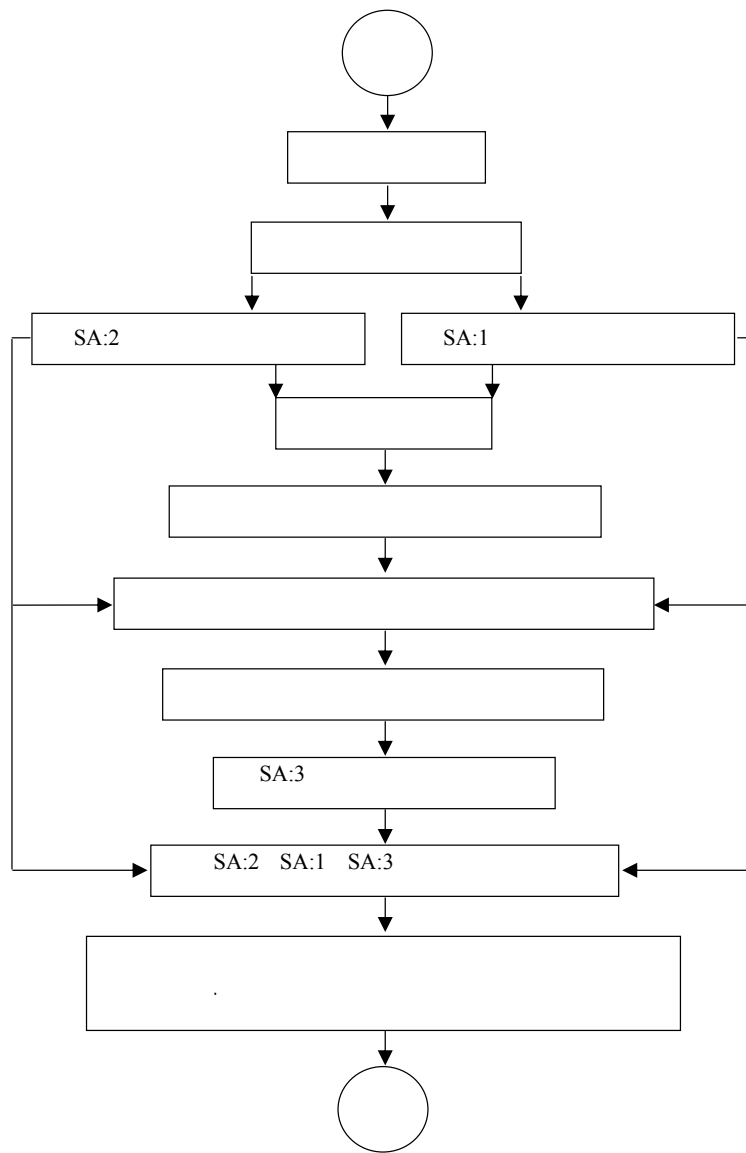
(SA:2)

(MUMT)

(SA:3)
(SA:2) (SA:1)

%

()



:

Gam T₀ T

:Total

:Accept

n

n

):

:Percent

:Count

$$\left(\left[0, \frac{1}{n} \right), \left[\frac{1}{n}, \frac{2}{n} \right), \dots, \left[\frac{(n-1)}{n}, 1 \right] \right)$$

$$(Accept / Total) * 100 < Percent$$

Count

Count Percent Accept Total

(SA:1)

(SA:1)

:F(S_C)

:F(S_{1C})

(SA:1,2,3)

Gam Percent A₅ A₁

:F(G_C)

:S

$$: e^{\left(\frac{D_s}{T} \right)}$$

:S₁

D_S

:G

(0,1)

:u

$$D_S = F(S_{1C}) - F(S_C)$$

()

:T

:T₀

D_G

:Gam

(SA:2)

$$D_G = F(S_C) - F(G_C) \quad ()$$

(SA:1)

(SA:2)

- :F(S_T) T=A_1, T_0=A_2, Total=0, Accept=0, Count=0

F(G_C) F(S_C) G S

:F(S_{IT}) T < T_0 Count=A_3

:F(G_T) S_1

D_S F(S_{IC}) S

:e^{(-\frac{D_S}{T})} D_S < 0

D_S F(S_C) S F(S_{IC}) S_1
Accept=Accept+1 D_G

D_G < 0

D_S = F(S_{IT}) - F(S_T) () Count F(G_C) G 0 F(S_{IC}) S_1

D_G u < e^{(-\frac{D_S}{T})}

D_G = F(S_T) - F(G_T) () F(S_C) S F(S_{IC}) S_1
Accept=Accept+1

(SA:2)

Total=Total+1
Accept > A_5 Total > A_4

T=A_1, T_0=A_2, Total=0, Accept=0, Count=0 (Accept / Total)*100 < Percent

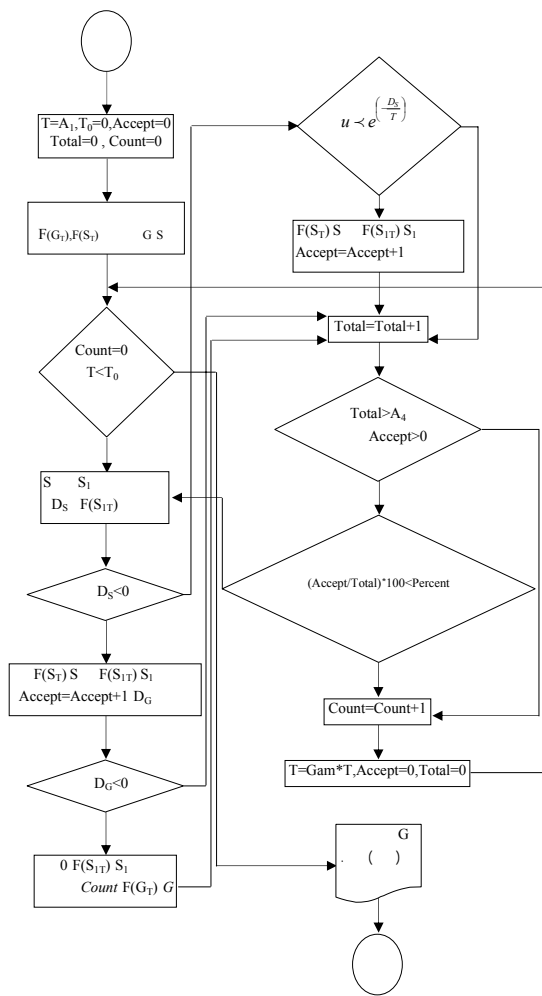
F(G_T) F(S_T) G S

T < T_0 Count=A_3 Total=0 Count=Count+1
T=Gam*T.

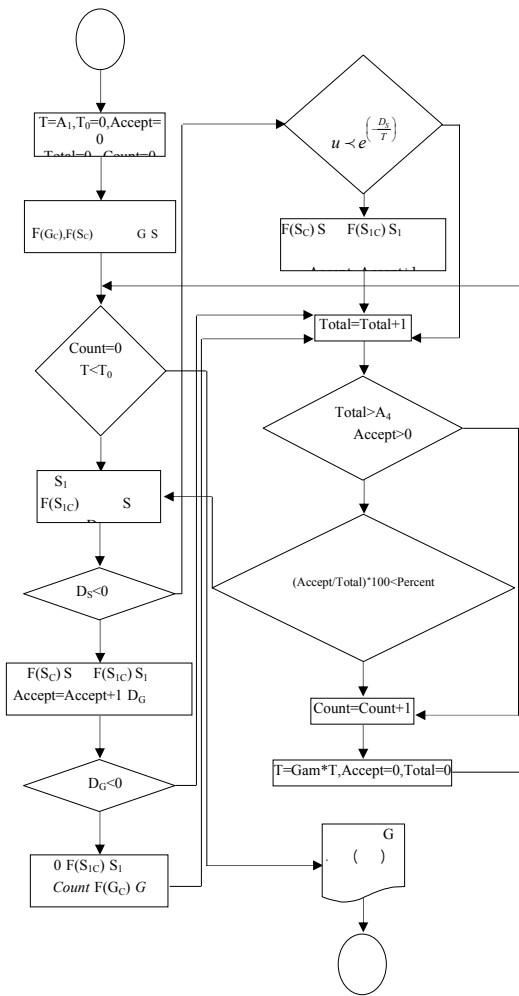
Accept=0

D_S F(S_{IT}) S () G

$Accept > A_5 \quad Total > A_4 \quad D_S < 0$
 $(Accept / Total) * 100 < Percent$
 $Count = Count + 1$
 $Total = 0$
 $T = Gam * T$
 $Accept = 0$
 $() \quad G$
 $u < e^{-\left(\frac{D_S}{T}\right)}$
(SA:2) **(SA:1)**
 $() \quad ()$
 $F(S_T) \quad S \quad F(S_{IT}) \quad S_1$
 $Accept = Accept + 1 \quad D_G$
 $D_G < 0$
 $Count \quad F(G_T) \quad G \quad 0 \quad F(S_{IT}) \quad S_1$
 $F(S_T) \quad S \quad F(S_{IT}) \quad S_1$
 $Accept = Accept + 1$
 $Total = Total + 1$



(SA:2)



(SA:1)

	D_{SC}		(SA:3)
:			
$D_{SC}=F(S_{1C})-F(S_C)$	()		
	D_{G1T}		
:			(SA:3)
$D_{G1T}=F(S_{1T})-F(G_{1T})$	()		:G
	D_{G1C}		:G ₁
:			:F(S _T), F(S _{1T}), F(S _C), F(S _{1C})
$D_{G1C}=F(S_{1C})-F(G_{1C})$	()	(SA:1,2)	
	D_{GT}		:F(G _C)
:			
$D_{GT}=F(S_{1T})-F(G_T)$	()		:F(G _T)
	D_{GC}		:F(G _{1C})
-			
:			
$D_{GC}=F(S_{1C})-F(G_C)$	()	()	:F(G _{1T})
	(SA:3)		
			()
$T=A_1, T_0=A_2, Total=0, Accept=0,$ $Count=0$			G_1, G, S_1, S
	G_1, G, S		$e^{\left(\frac{D_{SC}}{T}\right)}$
$F(G_{1T}), F(G_{1C}), F(G_T), F(G_C), F(S_T), F(S_C)$			D_{ST}
	$T < T_0, Count=A_3$		
	S_1		
D_{SC}, D_{ST}, S		$D_{ST}=F(S_{1T})-F(S_T)$	()
	$F(S_{1C}), F(S_{1T})$		

(SA:1,2) . $D_{ST} < 0$.

((SA:2)) ((SA:1)) . $D_{GIC} > D_{GIT}$.
 $D_{GIC} \leq 0$ $D_{GIT} \leq 0$.
 $D_{GIC} > 0$ $D_{GIT} > 0$

(SA:3) . $D_{SC} < 0$.

(SA:3) . D_{GIC}, D_{GC}, D_{GT} .
 $D_{GIC} < 0$ $D_{GC} < 0$ $D_{GT} \leq 0$.

(SA:3) $F(S_C) F(S_T) S$ $F(S_{IC}) F(S_{IT}) S_1$.
 0 $F(G_{IC}) F(G_{IT}) G_1$.
 () $Accept = Accept + 1$ Count
 $u < e^{\left(\frac{D_{SC}}{T}\right)}$.

(CD) $F(S_T) S$ $F(S_{IC}) F(S_{IT}) S_1$.
 CD $Accept = Accept + 1$ $F(S_C)$

Total = Total + 1 .
 $Accept > A_5$ $Total > A_4$.

(Accept / Total) * 100 < Percent .

) CD / / ($Count = Count + 1$.
 Total = 0 $T = Gam * T$.
 Accept = 0
 () G_1 .

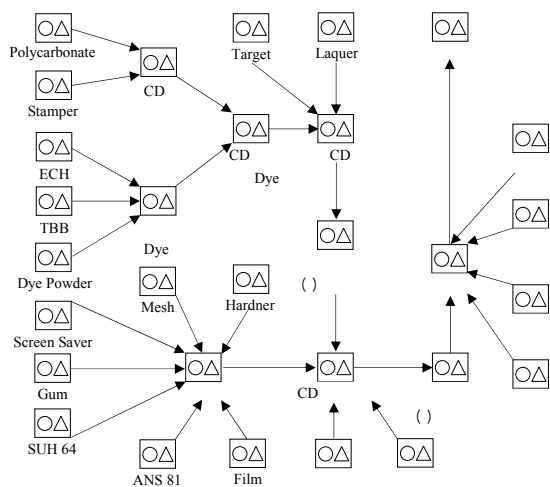
() .
 () (SA:3) (SA:2) (SA:1)
)
 ((SA:3) (SA:1,2)

Percent

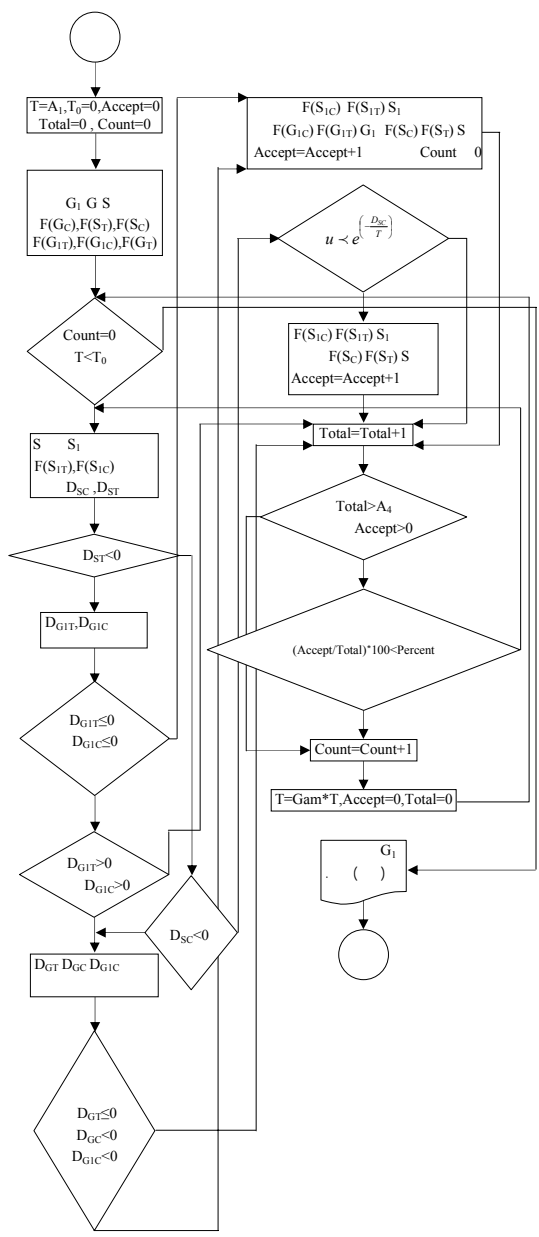
()

{
→ = / / = }

(SA:1)



(SA:3)



(SA:3)

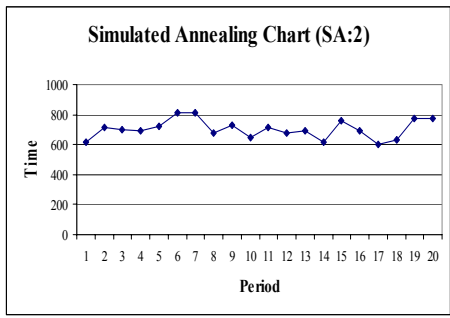
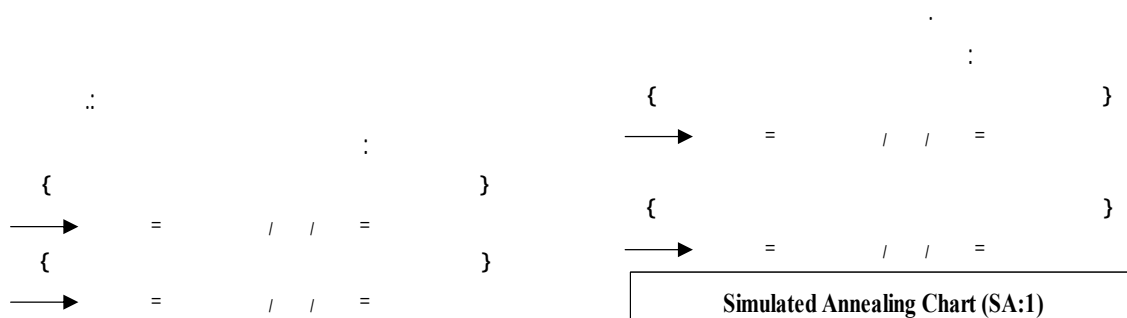
.CD

:

/		- Satti	ANS 81		/ / /	-Makrolon	Polycarbonate	
/		- Sericol			/ / /	- Lexan		
/		- Kiwobond			/ / /	- Lupilon		
/			Film		/ / /	- Panlite		
/					/ / /	- Wonderlite		
/ /		- Sericol			/	- Hamatech	Stamper	
/ /		- Dubuit			/	-H.T.C		
/ /		- Tong Jou			/	- Tiko jon	ECH	
/ /		- Pancolor			/	- Humanki		
/ /		- Astinum			/	- Kain hen	TBB	
/ /		- Kamman			/	- Tiko jon		
/ /		- Hankey			/	- Humanki		
/ /					/	- Kain hen	Dye Powder	
/ /					/ /	- Ultergreen		
/ /					/ / /	- MY-317		
/ /					/ / /	- PO1		
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/ /	CD		Dye		/ /	- Tong Jou	Laquer	
/ /	CD				/ /	- Satti	Screen Saver	
/ /	CD		CD		/ /	- Sefar		
/ /	CD		Dye CD		/ /	- Satti	Mesh	
/ /	CD		CD		/ /	- Sefar		
/ /	CD		()		/ /	- Satti	Hardner	
/ /	CD		CD		/ /	- Sericol		
/ /	CD		()		/ /	- Koatazol		
/ /	CD				/ /	- Satti		Gum
/ /	CD				/ /	- Sericol		
/ /					/ /	- Kiwobond		
/ /					/ /	- Satti	SUH 64	
/ /					/ /	- Sericol		
/ /					/ /	- Kiwobond		

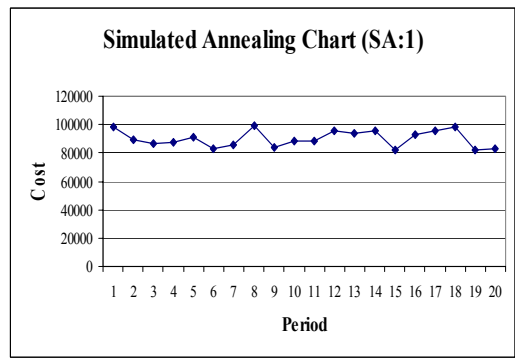
(SA:2)

(SA:1)



-(SA:2)

.CD



-(SA:1)

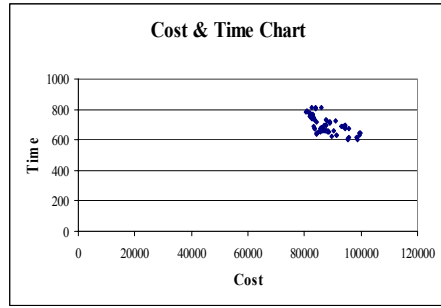
.CD

() ()

Y=-633ln(x) + 7948.5

Y=725 → X=90357.78 ≈ 90358

→ 90358000

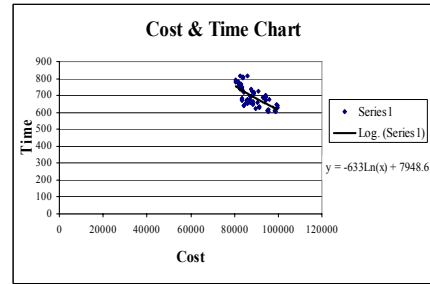


.CD

$$\left\{ \begin{array}{l} \rightarrow = / / = \end{array} \right\}$$

(SA:3)

(SA:3)



.CD

$$\left\{ \begin{array}{l} \rightarrow = / / = \end{array} \right\}$$

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$$\left\{ \begin{array}{l} \rightarrow = / / = \end{array} \right\}$$

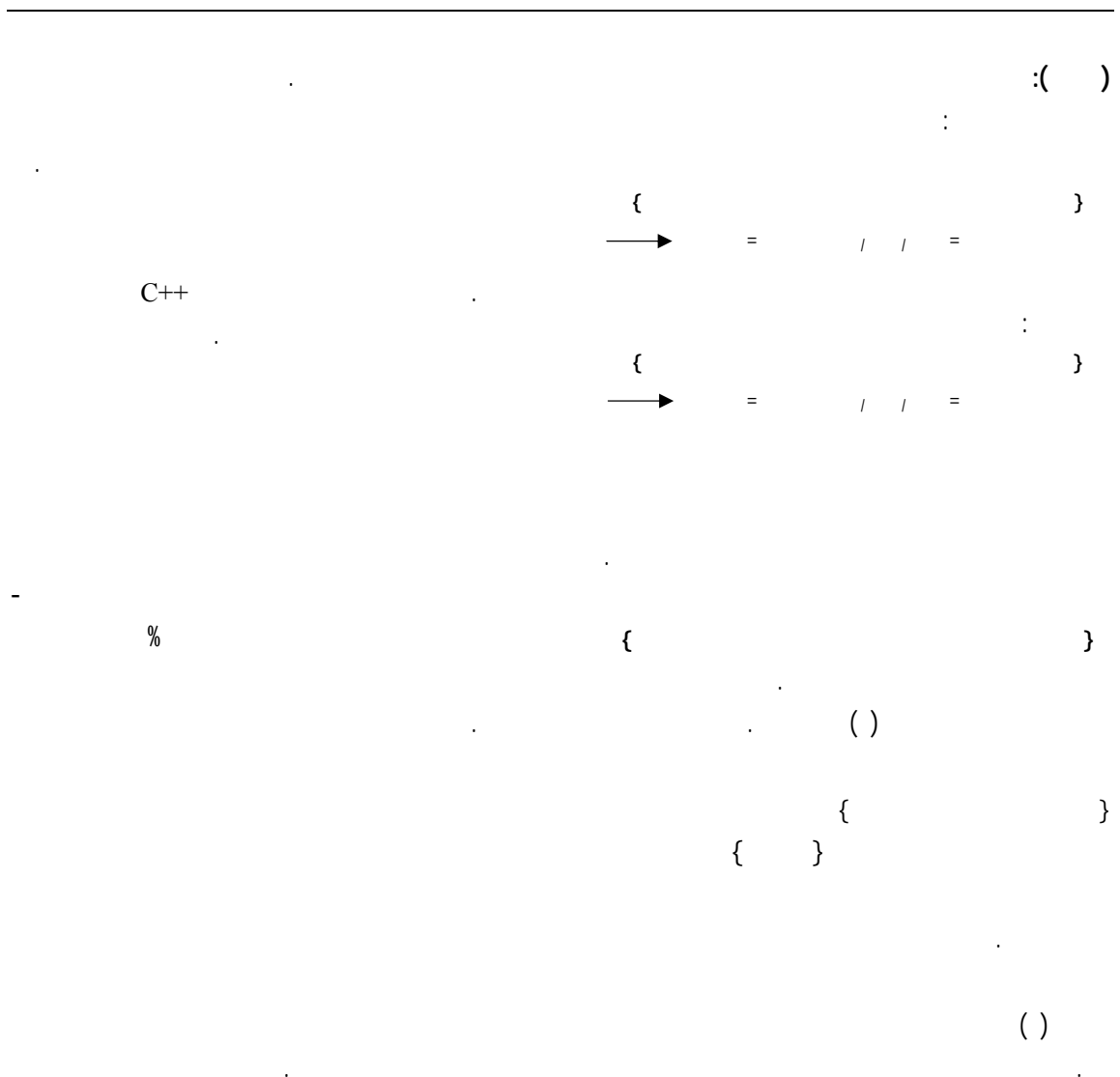
$$\left\{ \begin{array}{l} \rightarrow = / / = \end{array} \right\}$$

$$\left[\begin{array}{l} / / \\ / / \end{array} \right]$$

$$\left[\begin{array}{l} / / \\ / / \end{array} \right]$$

.CD

/	/		- Wonderlite	Polycarbonat
/			- H.T.C	Stamper
/			- Humanki	ECH
/			- Kain hen	TBB
/	/		- MY-317	Dye Powder
/			- x	Target
/			- Tong Jou	Laquer
/			- Sefar	Screen Saver
/			- Sefar	Mesh
/			- Sericol	Hardner
/			- Sericol	Gum
/			- Kiwobond	SUH 64
/			- Kiwobond	ANS 81
/				Film
/	/		- Pancolor	
/			- Astinum	
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|--|--------------------|--------------------|
| 1 - Lee | 2 - Billington | 3 - Pagel |
| 4 - Lawrance | 5 - Varma | 6 - Landsom |
| 7 - Lander | 8 - Online | 9 - Pulling System |
| 10- Fukuda | 11 – Kaplan | 12 - Song |
| 13- Liu | 14- Zhao | 15 - Graves |
| 16- Croos Functional Teams | 17 - Spanning Tree | 18 - Multi Echelon |
| 19- Zeng | | |
| 20 - Sharp Oliver & Palovich Busygin | | |
| 21 - Simulated Annealing (SA) | | |
| 22- Multiple Objective Decision Model (MODM) | | |
| 23 - Minimizing Unit Manufacturing Cost (MUMC) | | |
| 24 - Minimizing Unit Manufacturing Time (MUMT) | | |
| 25- Compact Disk (CD) | | |