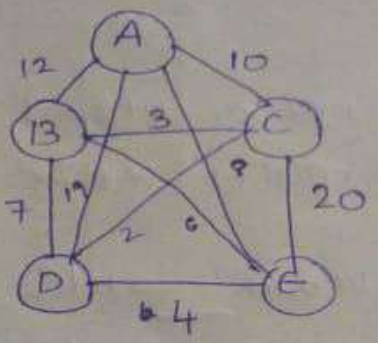

It-1

$$P(e,(a,b,c,d)) = \min_{j=a,b,c,d} \begin{cases} c(e,a)+P(a,(b,c,d) = 8+21 = 29 \\ c(e,b)+P(b,(a,c,d) = 6+28 = 34 \\ c(e,c)+P(c,(a,b,d) = 20+29 = 49 \\ c(e,d)+P(d,(a,b,c) = 4+25 = 29 \end{cases}$$

It-2

$$P(a,(b,c,d) = \min_{j=b,c,d} \begin{cases} c(a,b)+P(b,(c,d) = 12+9 = 21 \\ c(a,c)+P(c,(b,d) = 10+14 = 24 \\ c(a,d)+P(d,(b,c) = 19+11 = 30 \end{cases}$$

$$P(b,(a,c,d) = \min_{j=a,c,d} \begin{cases} c(b,a)+P(a,(c,d) = 12+16 = 28 \\ c(b,c)+P(c,(a,d)) = 3+29 = 32 \\ c(b,d)+P(d,(a,c)) = 7+20 = 27 \end{cases}$$

$$P(c,(a,b,d) = \min_{j=a,b,d} \begin{cases} P(c,a)+P(a,(b,d) = 10+23 = 33 \\ P(c,b)+P(b,(a,d) = 3+35 = 38 \\ P(c,d)+P(d,(a,b) = 2+27 = 29 \end{cases}$$

$$P(d,(a,b,c)) = \min_{j=a,b,c} \begin{cases} P(d,a)+P(a,(b,c)) = 19+19 = 38 \\ P(d,b)+P(b,(a,c)) = 7+21 = 28 \\ P(d,c)+P(c,(a,b)) = 2+23 = 25 \end{cases}$$

~~P(a,(b,(c,d)))~~ = It 2 ⇒

$P(b,(c,d)) = \min \begin{cases} j=c & c(b,c) + p(c,d) = 3+6 = 9 \\ j=d & c(b,d) + p(d,c) = 7+22 = 29 \end{cases}$

$P(c,(b,d)) = \min \begin{cases} j=b & c(c,b) + P(b,d) = 3+11 = 14 \\ j=d & c(c,d) + p(d,b) = 2+13 = 15 \end{cases}$

$P(d,(b,c)) = \min \begin{cases} j=b & c(d,b) + p(b,c) = 7+23 = 30 \\ j=c & c(d,c) + p(c,b) = 2+9 = 11 \end{cases}$

$P(a,(c,d)) = \min \begin{cases} j=c & c(a,c) + P(c,d) = 10+6 = 16 \\ j=d & c(a,d) + p(d,c) = 19+22 = 31 \end{cases}$

$P(c,(a,d)) = \min \begin{cases} j=a & c(c,a) + p(d,a) = 10+27 = 37 \\ j=d & c(c,d) + p(d,a) = 2+27 = 29 \end{cases}$

$P(d,(a,c)) = \min \begin{cases} j=a & c(d,a) + p(a,c) = 19+30 = 49 \\ j=c & c(d,c) + p(c,a) = 2+18 = 20 \end{cases}$

$P(a,(b,d)) = \min \begin{cases} j=b & c(a,b) + P(b,d) = 12+11 = 23 \\ j=d & c(a,d) + p(d,b) = 19+13 = 32 \end{cases}$

~~P(d,(c,b))~~ =

$P(b,(a,d)) = \min \begin{cases} j=a & c(b,a) + P(a,d) = 12+23 = 35 \\ j=d & c(b,d) + p(d,a) = 7+27 = 35 \end{cases}$

$P(a,(b,c)) = \min_{j=b,\,j=c} \begin{cases} c(a,b) + P(b,c) = 12+23 = 35 \\ c(a,c) + P(c,b) = 10+9 = 19 \end{cases}$

$P(b,(a,c)) = \min_{j=a,\,j=c} \begin{cases} c(b,a) + P(a,c) = 12+30 = 42 \\ c(b,c) + P(c,a) = 3+18 = 21 \end{cases}$

$P(c,(a,b)) = \min_{j=a,\,j=b} \begin{cases} c(c,a) + P(a,b) = 10+12 = 22 \\ c(c,b) + P(b,a) = 3+20 = 23 \end{cases}$

$P(d,(a,b)) = \min_{j=a,\,j=b} \begin{cases} c(d,a) + \min(a,b) = 19+12 = 31 \\ c(d,b) + P(b,a) = 7+20 = 27 \end{cases}$

It-4

$P(a,b) = \min j=b \{ c(a,b) + P(b,\phi) = 12+6 = 18$

$P(a,d) = \min j=d \{ c(a,d) + P(d,\phi) = 19+4 = 23$

$P(a,c) = \min j=c \{ c(a,c) + P(c,\phi) = 10+20 = 30$

$P(b,a) = \min j=a \{ c(b,a) + P(a,\phi) = 12+8 = 20$

$P(b,c) = \min j=c \{ c(b,c) + P(c,\phi) = 3+20 = 23$

$P(b,d) = \min j=d \{ c(b,d) + P(d,\phi) = 7+4 = 11$

$P(c,a) = \min j=a \{ c(c,a) + P(a,\phi) = 10+8 = 18$

$P(c,b) \quad \min j=b \{ c(c,b) + P(b,\phi) = 3+6 = 9$

$P(c,d) \quad \min j=d \{ c(c,d) + P(d,\phi) = 2+4 = 6$

$P(d,a) = \min j=a \{ c(d,a) + P(a,\phi) = 19+8 = 27$

$P(d,b) = \quad\quad j=b \{ c(d,b) + P(b,\phi) = 7+6 = 13$

$P(d,c) = \quad\quad j=c \{ c(d,c) + P(c,\phi) = 2+20 = 22$

It-5

$P(a|\Phi) = 8$

$P(b|\Phi) = 6$

$P(c|\Phi) = 20$

$P(d|\Phi) = 4$