Ex 22

$D[\{3\}][5] = \boxed{14.00\ (0)}$ $\quad 5 \to 1 = 14$

$D[\{2,5\}][6] = \boxed{32\ (2)}$

$6 \xrightarrow{12} 2 \to 1 \quad 6 \xrightarrow{12} D[\{3\}][2] = 32[2]$

$6 \xrightarrow{6} 5 \to 1 \quad 6 \xrightarrow{6} D[\{2,3\}][5] = 38[5]$

$D[\{2,3,5\}][6] = \boxed{29(5)}$

$6 \xrightarrow{12} [2 \to \{3,5\}] \to 1 = 12 + D[\{3,5\}][2] = 30(5)$

$6 \xrightarrow{23} [3 \to \{4,5\}] \to 1 \quad 23 + D[\{4,5\}][3] = 51(5)$

$6 \xrightarrow{6} [5 \to \{2,3\}] \to 1 \quad 6 + D[\{2,3\}][5] = 29(2)$

$D[\{2,4,5\}][7] = \boxed{30(4)}$

$7 \xrightarrow{12} D[\{4,5\}][2] = 35(4)$

$7 \xrightarrow{6} D[\{2,5\}][4] = 30(2)$

$7 \xrightarrow{25} D[\{2,4\}][5] = 49(2)$

$D[\{2,1,3,1,4,6\}][5] = \boxed{25(6)}$

$5 \xrightarrow{17} D[\{3,4,6\}][2] = 51(3)$, $34(3)$

$5 \xrightarrow{6} D[\{2,4,6\}][3] = 38(6)$, $32(6)$

$5 \xrightarrow{15} D[\{2,3,6\}][4] = 48(6)$, $33(6)$

$5 \xrightarrow{4} D[\{2,3,4\}][6] = 25(4)$, $21(4)$

$D[\{2,3,5,6,7\}][4] = \boxed{32(2)}$

$4 \xrightarrow{2} D[\{3,5,6,7\}][2] = 32(6)$, $30(6)$

$4 \xrightarrow{2} D[\{2,5,6,7\}][3] = 42(2)$, $46(2)$

$4 \xrightarrow{8} D[\{2,3,6,7\}][5] = 33(7)$, $25(7)$

$4 \xrightarrow{15} D[\{2,3,5,7\}][6] = 42(5)$, $27(5)$

$4 \xrightarrow{24} D[\{2,3,5,6\}][7] = 62(6)$, $33(6)$

Optimal Path

$1 \to D[\{3,4,5,6,7\}][2] = \overset{7}{\underset{35(3)}{}} \quad 7+35 = 42$

$1 \to D[\{2,4,5,6,7\}][3] = \overset{2}{\underset{33(5)}{}} \quad 2+33 = 35$

$1 \to D[\{2,3,5,6,7\}][4] = \overset{11}{\underset{32(6)}{}} \quad 11+32 = 43$

$1 \to D[\{2,3,4,6,7\}][5] = \overset{14}{\underset{28(7)}{}} \quad 14+28 = 42$

$1 \to D[\{2,3,4,5,7\}][6] = \overset{9}{\underset{23(5)}{}} \quad 9+23 \to \boxed{32(6)}$

$1 \to D[\{2,3,4,5,6\}][7] = \overset{5}{\underset{30(4)}{}} \quad 5+30 = 35$

Optimal path is 32(6)

Which is $1 \to 6 \to 5 \to 7 \to 4 \to 2 \to 3 \to 1$