

Homework 3, Part 2

Message	Ci	Ti	pi
m1	12	30	1
m2	6	40	2
m3	12	50	3
m4	21	100	4

For m1:

$$w1 = C1$$

$$w1 = 12$$

For m2:

$$w2 = q2 + c2$$

$$c2 = 6$$

$$q2(1) = c2 = 6$$

$$q2(2) = c2 + \text{ceil}(q2(1) / T1) * C1$$

$$q2(2) = 6 + \text{ceil}(6 / 30) * 12 = 18$$

$$q2(3) = 6 + \text{ceil}(18 / 30) * 12 = 18$$

$$w2 = 18$$

For m3:

$$w3 = q3 + C3$$

$$c3 = 12$$

$$q3(1) = c3 = 12$$

$$q3(2) = c3 + \text{ceil}(q3(1) / T1) * C1 + \text{ceil}(q3(1) / T2) * C2$$

$$q3(2) = 12 + \text{ceil}(12/30) * 12 + \text{ceil}(12/40) * 6 = 30$$

$$q3(3) = 12 + \text{ceil}(30/30) * 12 + \text{ceil}(30/40) * 6 = 30$$

$$w3 = 30$$

For m4:

$$w4 = q4 + C4$$

$$c4 = 21$$

$$q4(1) = C4 = 21$$

$$q4(2) = C4 + \text{ceil}(q4(1) / T1) * C1 + \text{ceil}(q4(1) / T2) * C2 + \text{ceil}(q4(1) / T2) * C3$$

$$q4(2) = 21 + \text{ceil}(21/30) * 12 + \text{ceil}(21/40) * 6 + \text{ceil}(21/50) * 12 = 51$$

$$q4(3) = 21 + \text{ceil}(51/30) * 12 + \text{ceil}(51/40) * 6 + \text{ceil}(51/50) * 12 = 81$$

$$q4(4) = 21 + \text{ceil}(81/30) * 12 + \text{ceil}(81/40) * 6 + \text{ceil}(81/50) * 12 = 99$$

$$q4(5) = 21 + \text{ceil}(99/30) * 12 + \text{ceil}(99/40) * 6 + \text{ceil}(99/50) * 12 = 111$$

$$q4(6) = 21 + \text{ceil}(111/30) * 12 + \text{ceil}(111/40) * 6 + \text{ceil}(111/50) * 12 = 123$$

$$q4(7) = 21 + \text{ceil}(123/30) * 12 + \text{ceil}(123/40) * 6 + \text{ceil}(123/50) * 12 = 141$$

$$q4(8) = 21 + \text{ceil}(141/30) * 12 + \text{ceil}(141/40) * 6 + \text{ceil}(141/50) * 12 = 141$$

$$w4 = 141$$