Task 4

Assumption

1. Periodic task
2. Deadline = period
3. Idle system

U = 2.5/5 +4.5/15 +3.5/20 = 0.975

Urm = 3\*(2^(1/3)-1) = 0.799

U> Urm  
system guaranteed not schedulable

Time Demand analysis

Assuming

1. Periodic task
2. Deadline = period
3. Idle system

For Task 1 :

W(1) = 2.5 +0 = 2.5

W(2) = 2.5 +0 = 2.5

W(3) = 2.5 +0 = 2.5

W(4) = 2.5 +0 = 2.5

W(5) = 2.5 +0 = 2.5 <D so T1 is schedulable

For Task 2

W(1) = 4.5 +(1/5)\*2.5 = 7

W(2) = 2.5 +(2/5)\*2.5 = 7

W(3) = 2.5 +(3/5)\*2.5 = 7

W(4) = 2.5 +(4/5)\*2.5 = 7

W(5) = 2.5 +(5/5)\*2.5 = 7

W(6) = 2.5 +(6/5)\*2.5 = 9.5

W(7) = 2.5 +(7/5)\*2.5 = 9.5

W(8) = 2.5 +(8/5)\*2.5 = 9.5

W(9) = 2.5 +(9/5)\*2.5 = 9.5

W(10) = 2.5 +(10/5)\*2.5 = 9.5

W(11) = 2.5 +(11/5)\*2.5 = 12

W(12) = 2.5 +(12/5)\*2.5 = 12

W(13) = 2.5 +(13/5)\*2.5 = 12

W(14) = 2.5 +(14/5)\*2.5 = 12

W(15) = 2.5 +(15/5)\*2.5 = 12 <D so T2 is schedulable

For Task 3

W(1) = 3.5 +(1/5)\*2.5 + (1/15)\*4.5 = 10.5

W(2) = 3.5 +(2/5)\*2.5 + (2/15)\*4.5 = 10.5

W(3) = 3.5 +(3/5)\*2.5 + (3/15)\*4.5 = 10.5

W(4) = 3.5 +(4/5)\*2.5 + (4/15)\*4.5 = 10.5

W(5) = 3.5 +(5/5)\*2.5 + (5/15)\*4.5 = 10.5

W(6) = 3.5 +(6/5)\*2.5 + (6/15)\*4.5 = 13

W(7) = 3.5 +(7/5)\*2.5 + (7/15)\*4.5 = 13

W(8) = 3.5 +(8/5)\*2.5 + (8/15)\*4.5 = 13

W(9) = 3.5 +(9/5)\*2.5 + (9/15)\*4.5 = 13

W(10) = 3.5 +(10/5)\*2.5 + (10/15)\*4.5 = 13

W(11) = 3.5 +(11/5)\*2.5 + (11/15)\*4.5 = 15.5

W(12) = 3.5 +(12/5)\*2.5 + (12/15)\*4.5 = 15.5

W(13) = 3.5 +(13/5)\*2.5 + (13/15)\*4.5 = 15.5

W(14) = 3.5 +(14/5)\*2.5 + (14/15)\*4.5 = 15.5

W(15) = 3.5 +(15/5)\*2.5 + (15/15)\*4.5 = 15.5

W(16) = 3.5 +(16/5)\*2.5 + (16/15)\*4.5 = 22.5

W(17) = 3.5 +(17/5)\*2.5 + (17/15)\*4.5 = 22.5

W(18) = 3.5 +(18/5)\*2.5 + (18/15)\*4.5 = 22.5

W(19) = 3.5 +(19/5)\*2.5 + (19/15)\*4.5 = 22.5

W(20) = 3.5 +(20/5)\*2.5 + (20/15)\*4.5 = 22.5 >D so T3 is not schedulable

