

Algorithm

Initially Gopher1, Gopher2 and Gopher3 are at the starting point and Gopher4 is at the incinerator.

S.no.	Books in Pile	Task	Books at the other end	Time (seconds)
1	25	Gopher1 will load 5 books in the cart.	0	0-10
2	20	Gopher2 will load 5 books in the cart.	0	10-20
3	15	Gopher3 will load 5 books in the cart.	0	20-30
4	10	Gopher1 will go to incinerator.	0	10-40
5	10	Gopher2 will go to incinerator.	0	20-50
6	10	Gopher3 will go to incinerator.	0	30-60
7	10	Gopher1 will unload books.	5	40-50
8	10	Gopher4 will burn three books.	2	50-70
9	10	Gopher2 will unload books.	7	50-60
10	10	Gopher1 will go back to the pile.	7	50-80
11	10	Gopher3 will unload books.	12	60-70
12	10	Gopher2 will go back to the pile.	12	60-90
13	10	Gopher4 will burn three books.	9	70-90
14	10	Gopher1 will load 5 books in the cart.	9	80-90
15	5	Gopher2 will load 5 books in the cart.	9	90-100
16	0	Gopher1 will go to incinerator.	9	90-120
17	0	Gopher4 will burn three books.	6	90-110
18	0	Gopher2 will go to incinerator.	6	100-130
19	0	Gopher4 will burn three books.	3	110-130
20	0	Gopher1 will unload books.	8	120-130
21	0	Gopher4 will burn three books.	5	130-150
22	0	Gopher2 will unload books.	10	130-140
23	0	Gopher4 will burn three books.	7	150-170
24	0	Gopher4 will burn three books.	4	170-190
25	0	Gopher4 will burn three books.	1	190-210
26	0	Gopher4 will burn one book.	0	210-230

This runs on one path. The same algorithm will run on another path in parallel. So, the total time is 230 seconds.

TIME				INCINERATOR1				INCINERATOR2
	Gopher 1	Gopher2	Gopher3	Gopher4	Gopher5	Gopher6	Gopher7	Gopher8
10	load				load			
20	GTI	load			GTI	load		
30	GTI	GTI	load		GTI	GTI	load	
40	GTI	GTI	GTI		GTI	GTI	GTI	
50	unload	GTI	GTI		unload	GTI	GTI	
60	GTP	unload	GTI	burn1	GTP	unload	GTI	burn1
70	GTP	GTP	unload	burn1	GTP	GTP	unload	burn1
80	GTP	GTP		burn2	GTP	GTP		burn2
90	load	GTP		burn2	load	GTP		burn2
100	GTI	load		burn3	GTI	load		burn3
110	GTI	GTI		burn3	GTI	GTI		burn3
120	GTI	GTI		burn4	GTI	GTI		burn4
130	unload	GTI		burn4	unload	GTI		burn4
140		unload		burn5		unload		burn5
150				burn5				burn5
160				burn6				burn6
170				burn6				burn6
180				burn7				burn7
190				burn7				burn7
200				burn8				burn8
210				burn8				burn8
220				burn9(one book)				burn9(one book)
230				burn9(one book)				burn9(one book)

GTI : Go To Incinerator

GTP: Go To Pile