

Question 5

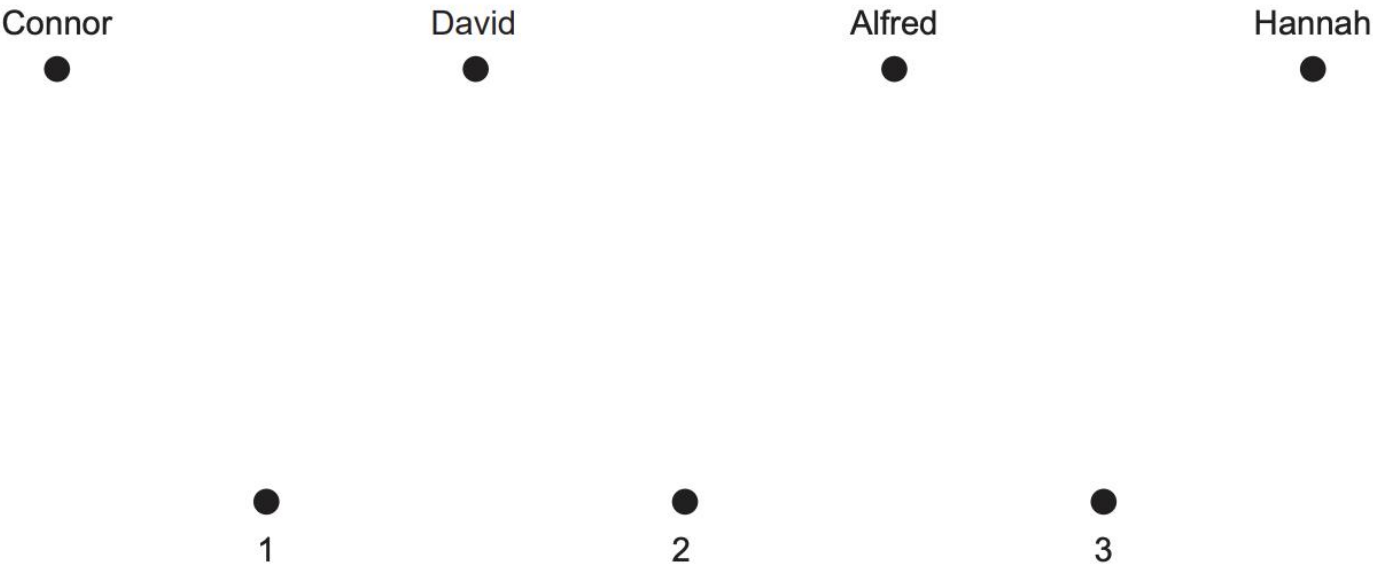
(10 marks)

Four camp leaders, Connor, David, Alfred and Hannah, are responsible for setting up the camp site for the upcoming school camp. Today there are three tasks available. Each task will only have one camp leader assigned to it.

The number of hours each camp leader takes to complete each task is shown in the table below.

		Task		
		1	2	3
Camp leader	Connor	7	5	8
	David	3	8	5
	Alfred	9	6	7
	Hannah	8	8	6

- (a)
- Draw a weighted bipartite graph showing all the possible allocations for each of the camp leaders.
- (2 marks)



- (b)
- Complete the 4 x 4 matrix below to represent the allocation of tasks to camp leaders.
- (2 marks)

7

5

9

- (c) Use the Hungarian algorithm to determine the allocation of camp leader to the task that will minimise the time taken. (4 marks)

- (d) Show the task allocated to each camp leader and calculate the total time taken to complete all tasks. (2 marks)

Camp leader	Connor	David	Alfred	Hannah
Task				

Total time: _____