Question 3
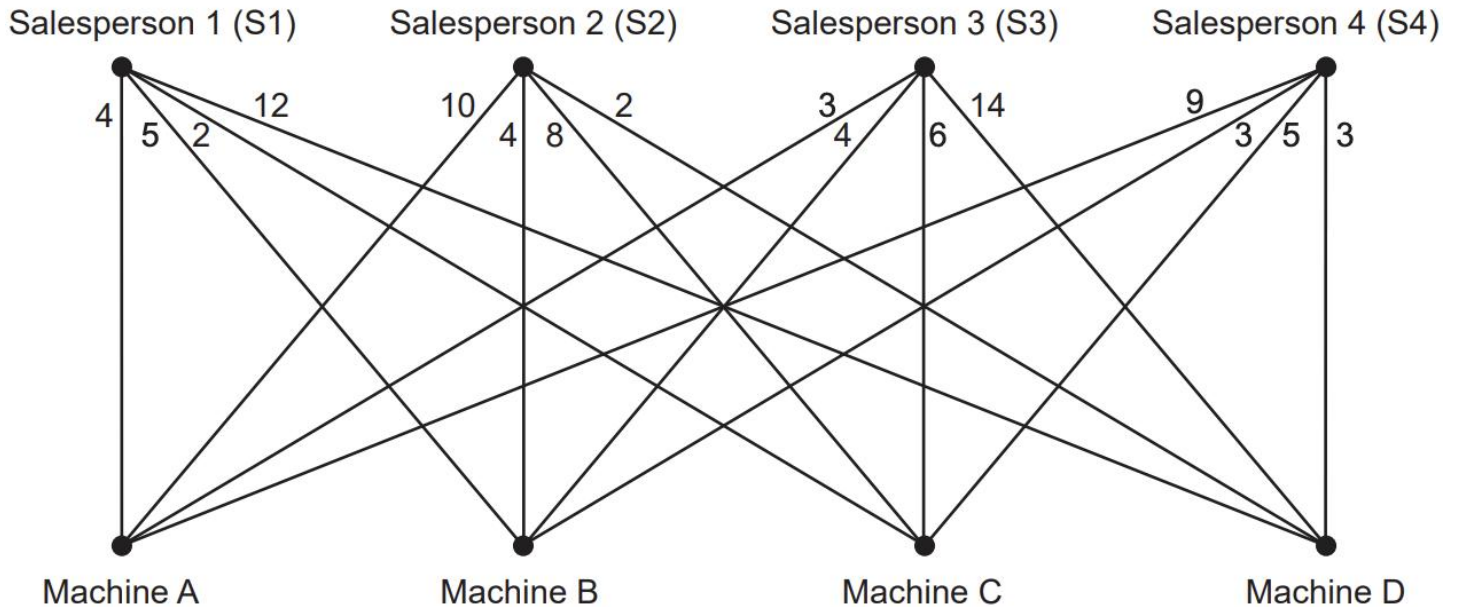
The bipartite graph below shows the average number of sales per day of four specialist pieces of machinery by four salespersons. The salespersons went through a rotation process of spending a number of full days selling only one type of machine before moving to the next. The company that makes these machines wants to maximise the sales by allocating the sales of each machine to only one person.

(a) Complete the matrix below showing the information from the bipartite graph. (1 mark)

	A	B	C	D
S1	4	5	2	12
S2	10	4	8	2
S3	3	4		
S4				

(b)   Show use of the Hungarian algorithm to allocate each salesperson to a specialist machine in order to maximise sales. The allocation is to be written in the table below.

(5 marks)

Salesperson	1	2	3	4
Machine				

(c) How many more sales are made by using the allocation in part (b) compared to the allocation: S1 – A, S2 – B, S3 – C and S4 – D?   (2 marks)