Question Number	Scheme	Marks
1. (a)	Nearest neighbour: A – B – F – D – E – C – A 35 31 44 39 53 42 = 244 (km)	M1 A1 **(2)**
(b)	MST with B removed: AC, CD, DF, DE gives a RMST weight of 172 (km)	B1
	172 + 31 + 35 = 238 (km)	M1 A1 **(3)** **5 marks**
	Notes for Question 1	

a1M1: Nearest neighbour A – B – F – D – E – C – (condone lack of return to start) **or** correct route length of 244. Accept AB, BF, FD, DE, EC but do not accept weights only. Accept 1 2 6 4 5 3 across the top of the table

a1A1: CAO both route (either in terms of vertices (ABFDECA) or arcs (AB, BF, FD, DE, EC, CA) but not weights) **and** length correct (244) do not ISW if this value is then doubled to 488

b1B1: CAO for RMST weight (either 172 or 42 + 47 + 44 + 39) – maybe implied by later working

b1M1: Adding 31 + 35 (the two least weighted arcs) to their RMST length – this mark maybe implied by the correct value for the lower bound – note that their RMST must contain only four arcs

b1A1: CAO - if 238 seen without working then award B0M1A1