



Q	Answer	Marks
1	150	2
2	a) 300 b) Any one of: the population is unchanged between visits; the ringed birds mix fully with the population; rings are not lost; each bird is equally likely to be caught	3
3	a) 180 b) Any one of: marked snails mix evenly; no marks wash off; population unchanged; every snail equally likely to be collected	3
4	a) 400 b) The estimate is an overestimate - marked beetles are undercounted, so dividing by a smaller number makes the estimate too large	3
5	a) 300 b) Any one of: tagged rabbits mix fully; population unchanged; tags not lost; all rabbits equally likely to be trapped c) Too many tagged rabbits would be recaptured, making the tagged proportion too high, so the estimate would be an underestimate	4
6	a) 640 b) No; $640 < 800$ so the estimate does not support at least 800 deer c) Any one of: tagged deer mix fully; population unchanged over the month; tags not lost; every deer equally likely to be observed	4
7	a) 6 b) New estimate = 360, so the population is likely to be smaller than 600	4
8	a) 1250 b) Two of: full mixing; unchanged population; no lost marks; equal chance of capture	4

Full worked solutions, written out by hand, are on the solutions sheet for this topic.