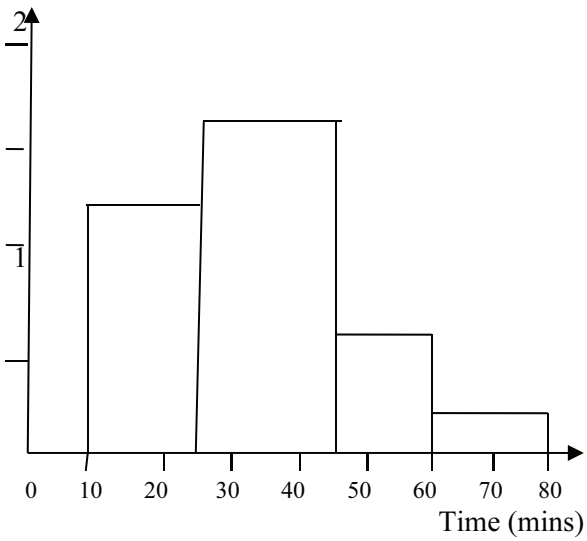
1	**(i)**	$\Sigma x = 862$	**B1** 1	Must be stated or replaced in (ii) Can see **(i)** and **(ii)** in any order
	(ii)	$362/10 + a = 86.2$ $a = 50$	**M1** **A1** 2	86.2 ± 36.2 seen oe Correct answer, nfww
2		No of W: 0 | 1 | 2 Prob: 42/90 | 42/90 | 6/90 P(0) = 8/10 × 7/9 × 6/8 = 42/90 P(1W) = P(W,NW, NW) × 3 = 2/10 × 8/9 × 7/8 × 3 = 42/90 P(2W) = P(W, W, NW) × 3 = 2/10 × 1/9 × 8/8 × 3 = 6/90	**B1** **M1** **M1** **A1** 4	0, 1, 2, seen in table with attempt at prob. 3-factor prob seen with different denoms. Mult by 3 All correct
3	**(i)**	P(R) [(1, 4),(2,5), (3,6),(4,7),(5,8)] × 2/64 = 10/64	**M1** **A1** 2	List of at least 4 different options or possibility space diagram Correct answer
	(ii)	P(S) = [(3,8)(3,7)(4,8)(4,7)(4,6)(4,5)(5,8) (5,7)(5,6)(6,8)(6,7)(7,8)] × 2 + (5,5)(6,6)(7,7)(8,8) = 28/64	**M1** **A1** 2	List of at least 14 different options or ticks **oe** from possibility space Correct answer
	(iii)	$P(R \cap S) = 4/64$ $4/64 \neq 10/64 \times 28/64$ Events are not independent	**B1** **M1** **A1** 3	 Comparing their P($R \cap S$) with (i) ×(ii) with values Correct answer
4	**(i)**	32	**B1** 1	
	(ii)	freqs 0 18 32 9 4 fd 0 1.2 1.6 0.6 0.2 cf  	**M1** **A1** **B1** **B1** 4	attempt at fd or scaled freq (at least 3 f/cw attempt) correct heights seen on diagram Correct bar ends Labels fd and time (mins) and linear axes or squiggle

	(iii)	$(17.5 \times 18 + 35 \times 32 + 52.5 \times 9 + 70 \times 4)/63$ $= 2187.5/63 = 34.7$	**M1** **A1** 2	$\Sigma fx/63$ where x is midpoint attempt not end pt or cw Correct answer
5	**(i)**	P(Abroad given camping) $= \dfrac{P(A \cap C)}{P(A \cap C) + P(H \cap C)}$ $= \dfrac{0.35 \times 0.15}{0.35 \times 0.15 + 0.65 \times 0.4}$ $= \dfrac{0.0525}{0.3125}$ $= 0.168$	**M1** **A1** **M1** **A1** **A1** 5	Attempt at P($A \cap C$) seen alone anywhere Correct answer seen as num or denom of a fraction Attempt at P(C) seen anywhere Correct unsimplified answer seen as num or denom of a fraction Correct answer
	(ii)	$(0.65)^n < 0.002$ $n > \lg(0.002)/\lg(0.65)$ $n = 15$	**M1** **M1** **A1** 3	Eqn with 0.65 or 0.35, power n, 0.002 or 0.998 Attempt to solve their eqn by logs or trial and error need a power Correct answer
6	**(i)**	$^{15}P_5$ $= 360360$	**M1** **A1** 2	oe, can be implied Not $^{15}C_5$ Correct answer
	(ii)	$5 \times 10 \times 4 \times 9 \times 3$ $= 5400$	**M1** **A1** 2	Mult 5 numbers Correct answer
	(iii)	M(5) F(10) 3 2 $= {}^5C_3 \times {}^{10}C_2 = 450$ ways 4 1 $= {}^5C_4 \times {}^{10}C_1 = 50$ 5 0 $= {}^5C_5 \times {}^{10}C_0 = 1$ Total = 501 ways	 **M1** **M1** **A1** 3	 Mult 2 combs, ${}^5C_x \times {}^{10}C_y$ Summing 2 or 3 two-factor options, $x + y = 5$ Correct answer
	(iv)	(Couple) M(4) F(9) ManWife + 3 0 $= {}^4C_3 \times {}^9C_0 = 4$ ManWife + 2 1 $= {}^4C_2 \times {}^9C_1 = 54$ Total = 58	 **M1** **M1** **A1** 3	 Mult 2 combs ${}^4C_x$ and ${}^9C_y$ Summing both options $x + y = 3$, gender correct Correct answer
7	**(i)**	$z = -1.645$ $-1.645 = \dfrac{0.9 - m}{0.35}$ $m = 1.48$	**B1** **M1** **A1** 3	± 1.64 to 1.65 seen Standardising with a z-value accept $(0.35)^2$ Correct answer
	(ii)	$P(< 2) = P\left(z < \dfrac{2 - 1.476}{0.35}\right)$ $= P(z < 1.50)$ $= 0.933$ Prob $= (0.9332)^4$ $= 0.758$	**M1** **M1** **A1** **M1** **A1** 5	Standardising no sq , FT *their m*, no cc Correct area i.e. F Accept correct to 2sf here Power of 4, from attempt at P(z) Correct answer

(iii)	$P(t > 0.6\mu) = P\left(z > \dfrac{0.6\mu - \mu}{\mu/3}\right)$ $= P(z > -1.2)$ $= 0.885$	**M1** **M1** **A1**	3	Standardising attempt with 1 or 2 variables Eliminating μ or σ Correct final answer