

Question	Scheme	Marks	AOs
3(a)	$\frac{82}{65+82+231+262} \times 100 (= 12.8125)$	M1	1.1b
	13	A1	1.1b
		(2)	
(b)(i)	$[F = \text{faulty}, T = \text{tests positive}] \quad P(F T) = \frac{P(F \cap T)}{P(T)}$	M1	3.1b
	$P(F \cap T) = 0.02 \times 0.7 [= 0.014]$	M1	1.1b
	$P(T) = 0.02 \times 0.7 + 0.98 \times 0.1 [= 0.112]$	M1	1.1b
	$P(F T) = 0.125$	A1	1.1b
		(4)	
b(ii)	Most machines that test positive do not have faults therefore the company's test is not very useful oe	B1	3.2a
		(1)	
(c)	$P(A \cap B) = 0.18$	M1	2.1
	e.g. $P(A) \times P(B) = 0.35 \times 0.55 = 0.1925 \neq P(A \cap B) = 0.18$	A1	1.1b
		(2)	
(d)	$P(A \text{ or } B \text{ not both}) = 0.35 + 0.55 - 2 \times 0.18$ oe	M1	3.1b
	=0.54	A1	1.1b
		(2)	
(10 marks)			

Notes:

(a)

M1: for a correct calculation for the strata size

A1: for 13

(b)

M1: for identifying correct calculation

M1: for method for finding $P(F \cap T)$

M1: for method for finding $P(T)$

A1: a correct answer

(c)

M1: for correctly finding $P(A \cap B)$ oe

A1: for a fully correct explanation: correct probabilities and correct comparisons

(d)

M1: for a correct expression

A1: cao