

1	(a)	2.5	3	M2 for $\frac{500 \times r \times 14}{100} = 675 - 500$ oe or M1 for $\frac{500 \times r \times 14}{100}$ or for $675 - 500$
	(b)	108.18	3	B2 for 508.18... or 508.2 or 508 or M1 for $400 \times \left(\frac{100 + 2.2}{100}\right)^{11}$ oe or better
	(c)	0.17[0] or 0.1700...	3	M2 for either $^{(12 \times 21)}\sqrt{\frac{1074}{700}}$ or $^{252}\sqrt{\frac{1074}{700}}$ or better or M1 for $700 \times [\dots]^{(12 \times 21)} = 1074$ oe If 0 scored SC1 answer 2.06 or 2.059...
2	(a)(i)	5	3	M2 for $\frac{(12800 - 8000) \times 100}{8000 \times 12}$ or M1 for $[12800 - 8000 =] \frac{8000 \times 12 \times r}{100}$ or 400 seen If 0 scored, SC1 for answer 13.3 or 13.33...
	(a)(ii)	4[.0] or 3.99...	3	M2 for $^{12}\sqrt{\frac{12800}{8000}}$ or M1 for $12800 = 8000 \times k^{12}$ for any k
	(b)	9 nfww	3	M2 for $260\,000 \times \left(1 + \frac{1.8}{100}\right)^8$ oe evaluated to 4 sf or better or $260\,000 \times \left(1 + \frac{1.8}{100}\right)^9$ oe evaluated to 2 sf or better or M1 for $[300\,000 =] 260\,000 \times \left(1 + \frac{1.8}{100}\right)^n$ oe soi (Accept any inequality sign in $[300\,000 =]$)

3	(a)(i)	6925.5[0] cao	2	M1 for $7695 \times \frac{100-10}{100}$ oe or B1 for answer 769.5
	(a)(ii)	8550	2	M1 for $X \times \frac{100-10}{100} = 7695$ oe
	(b)	660	3	B2 for 60 or M2 for $600 + \frac{600 \times 2 \times 5}{100}$ oe or M1 for $\frac{600 \times 2[\times 5]}{100}$ oe
	(c)	1.55 or 1.549 to 1.550	3	M2 for $\sqrt[12]{\frac{601.35}{500}}$ or M1 for $500 \times (\dots)^{12} = 601.35$
	(d)(i)	26.3 or 26.25 to 26.26	2	M1 for $[k] \left(\frac{100-3}{100} \right)^{10}$ oe
	(d)(ii)	23	3	M2 for a correct trial evaluated with $n = 22$ or $n = 23$ or M1 for $[k] (0.97)^n < 0.5[k]$ oe soi or for $[k](0.97)^n = 0.5[k]$ oe soi, implied by one correct trial $n > 10$ or for $[k](0.97)^{23}$ oe seen If 0 scored SC1 for answer 22

4	(a)(i)	22.5	2	M1 for $\frac{9}{14+17+9} [\times 100]$
	(a)(ii)	238	2	FT <i>their</i> $14 + 17 + 9 = N$ seen in (a)(i) M1 for $\frac{560}{\text{their } (14+17+9)} \times k$, where $k = 1, 9, 14$ or 17
	(a)(iii)	<u>METHOD 1</u> 1.25×195 oe	M2	M1 for $\frac{25}{100} \times 195$
		243[.75] and No oe	A1	Strict FT yes if <i>their</i> (a)(ii) > 243.75 If M0 scored, then SC1 for 243.75 and a correct conclusion.
		<u>METHOD 2</u> $\frac{\text{their } 238}{195} - 1 = 0.22\dots$ oe	(M2)	M1 for $\frac{\text{their } 238}{195} = 1.22\dots$ oe
		22[%] (or better) and No oe	(A1)	Strict FT yes if <i>their</i> (a)(ii) gives answer > 25 If M0 scored, then SC1 for 22.05 and a correct conclusion.
		<u>METHOD 3</u> $195 \times 0.25 = 48.75$ oe and <i>their</i> $238 - 195 = 43$	(M2)	M1 for 0.25×195
		43 and 48.75 and NO	(A1)	Strict FT yes if <i>their</i> (a)(ii) gives profit > 48.75 If M0 scored, then SC1 for 43 and 48.75 and a correct conclusion.
		<u>METHOD 4</u> $\frac{\text{their } 238}{125} \times 100$	(M2)	M1 for $x \times \left(1 + \frac{25}{100}\right) = \text{their } 238$
		190.4 and NO	(A1)	Strict FT yes if <i>their</i> (a)(ii) gives answer > 195 If M0 scored then SC1 for 190.4 and a correct conclusion.
	(b)	56.55	2	M1 for $\frac{725 \times 1.3 [\times 6]}{100}$ oe
	(c)	48.5[0]	2	M1 for $x \times \left(1 - \frac{24}{100}\right) = 36.86$ oe

5	(a)	249.98 to 250[.0...]	3	M2 for $830 - 500 \times 1.16$ or M1 for 500×1.16 OR M1 for $830 \div 1.16$ M1 for $(\text{their } 715.5... - 500) \times 1.16$
	(b)(i)	33.5 or 33.51...	2	M1 for $\frac{12400}{37000} [\times 100]$ oe If 0 scored, SC1 for answer 66.5 or 66.48 to 66.49
	(b)(ii)	38 184 cao	2	M1 for $37\,000 \times \left(1 + \frac{3.2}{100}\right)$ oe or B1 for 1184
	(c)(i)	441 or 440.6 or 440.64 to 440.65	3	B2 for answer 3941 or 3940.6 or 3940.64 to 3940.65 or M2 for $3500 \times \left(1 + \frac{2.4}{100}\right)^5 - 3500$ or M1 for $3500 \times \left(1 + \frac{2.4}{100}\right)^5$ oe isw
	(c)(ii)	16	3	B2 for 15[.0] nfwv to 15.1 or M2 for $3500 \times \left(1 + \frac{2.4}{100}\right)^{15}$ oe seen or $3500 \times \left(1 + \frac{2.4}{100}\right)^{16}$ oe seen or M1 for $(3500 \text{ or } \text{their } 3941) \times \left(1 + \frac{2.4}{100}\right)^n$ associated with 5000 oe
6	(a)(i)	$\frac{750}{8+7} \times 8$ [= 400]	M1	
	(a)(ii)(a)	37.5	1	
	(a)(ii)(b)	275	3	M2 for $250 + \frac{250 \times 2 \times 5}{100}$ oe or M1 for $\frac{250 \times 2 \times 5}{100}$ oe
	(a)(iii)	407[.00] cao nfwv	3	B2 for 406.5 to 406.7 or M1 for $350 \times \left(1 + \frac{0.25}{100}\right)^{60}$ oe isw If 0 scored SC1 for answer 354 or answer 406
	(b)	24	2	M1 for [C : D =] 6 : 10 oe and [C : E =] 6 : 9 oe or for $\frac{6}{6+10+9} [\times 100]$ oe

	(c)	56 000 nfwv	3	M2 for $60564 \div \left(1 + \frac{3}{100}\right) \div \left(1 + \frac{5}{100}\right)$ oe or M1 for $[x \times] \left(1 + \frac{3}{100}\right) \times \left(1 + \frac{5}{100}\right)$ or for $60564 \div \left(1 + \frac{3}{100}\right)$ oe or $60564 \div \left(1 + \frac{5}{100}\right)$ If 0 scored, SC1 for answer 65499 to 65500
	(d)	2.5[0] or 2.499...	3	M2 for $\sqrt[8]{\frac{609.20}{500}}$ oe or M1 for $500 \times (\dots)^8 = 609.2[0]$ oe
7	(a)(i)	105	2	M1 for $\frac{3}{100} \times 500 [\times 7]$
	(a)(ii)	115 or 114.9...	3	M2 for $500 \times \left(1 + \frac{3}{100}\right)^7 [-500]$ or M1 for $500 \times \left(1 + \frac{3}{100}\right)^k$, k integer ≥ 2
	(b)	8600	3	M2 for $\frac{6269.4}{\left(1 - \frac{10}{100}\right)^3}$ oe or M1 for $C \times \left(1 - \frac{10}{100}\right)^3 = 6269.4$ oe
8	(a)(i)	14, 10	2	M1 for $24 \div (7 + 5)$
	(a)(ii)	$\frac{3}{350}$	2	B1 for correct fraction not in lowest terms
	(a)(iii)	120	1	
	(b)(i)	10.2[0]	2	M1 for $\frac{15}{100} \times 12$ oe or better
	(b)(ii)	45	2	M1 for $\frac{38.25}{1 - \frac{15}{100}}$ oe
	(c)(i)	85	2	M1 for $\frac{500 \times 1.7 \times 10}{100}$ oe
	(c)(ii)	203 or 202.5 to 202.6	2	M1 for $200 \times \left(1 + \frac{0.0035}{100}\right)^{365}$
	(c)(iii)	1.9	3	M2 for $\sqrt[6]{\frac{559.78}{500}}$ or M1 for $500 \left(1 + \frac{r}{100}\right)^6 = 559.78$

9	(a)(i)	7680	2	M1 for $0.24 \times 32\,000$ oe
	(a)(ii)	34 240	2	M1 for $32\,000 \times \frac{100+7}{100}$ oe
	(b)	5306.04	2	M1 for $5000 \times \left(1 + \frac{2}{100}\right)^3$ oe
	(c)	26.7 or 26.66... to 26.67	4	B3 for 96 or $\frac{96}{360}$ oe OR M3 for $\left(1 - \frac{1}{5}\right) \times \left(1 - \frac{2}{3}\right) \times 100$ oe or M2 for $\left(1 - \frac{1}{5}\right)$ and $\left(1 - \frac{2}{3}\right)$ oe OR M1 for $360 \div 5$ [$\times 4$] oe M1 for <i>their</i> $288 \div 3$ [$\times 2$]
	(d)	33 500	2	M1 for $36\,515 \div \frac{100+9}{100}$ oe
	(e)	6525	4	M3 for $\left(\frac{65}{45} - \frac{63}{45}\right)[A] = 290$ oe or M2 for $\left(\frac{13}{9} - \frac{7}{5}\right)[A] = 290$ oe or M1 for correct attempt to convert to a common ratio value for Arjun or for $\frac{13}{9} - \frac{7}{5}$ oe
10	(a)	662.45	2	M1 for $600 \times \left(1 + \frac{2}{100}\right)^5$ oe
	(b)(i)	800	2	M1 for $x \left(1 + \frac{5}{100}\right)^2 = 882$ oe or SC1 for answer 82
	(b)(ii)	5 nfww	2	M1 for trial with $882 \times \left(1 + \frac{5}{100}\right)^n$ with $n > 1$

11	(a)(i)	13.5	3	M2 for $\frac{45.4[0] - 40}{40} [\times 100]$ or $\frac{45.4[0]}{40} \times 100$ or M1 for $\frac{45.4[0]}{40} [\times 100]$
	(a)(ii)	35.5[0]	3	M2 for $42.6[0] \div \left(1 + \frac{20}{100}\right)$ or better or M1 for recognising 42.6[0] as 120[%]
	(b)	150 cao	2	M1 for $\frac{500 \times 2 \times 15}{100}$ oe
	(c)(i)	7800 cao	3	B2 for 7790 or 7785 to 7786 or M1 for $21000 \times \left(1 - \frac{18}{100}\right)^5$ oe isw If 0 or 1 scored, SC1 for <i>their</i> 7785... seen and rounded correctly to nearest 100
	(c)(ii)	9[.00...]	3	M2 for $\sqrt[12]{\frac{42190}{15000}}$ or better or M1 for $15000 \left(1 + \frac{x}{100}\right)^{12} = [42190]$
12	(a)	6.06 or 6.060 to 6.061	3	M2 for $\frac{82500 - 77500}{82500} [\times 100]$ oe or M1 for $\frac{77500}{82500} [\times 100]$ soi
	(b)	13 674 cao	3	M1 for $12000 \left(1 + \frac{2.2}{100}\right)^6$ A1 for 13673.7...

13	(a) (i)	11 054.25 final answer
	(ii)	16 500
	(b)	260 final answer
	(c) (i)	6.18
	(ii)	6
14	(a) (i)	48
	(ii)	32.4[0]
	(iii)	$\frac{13}{30}$
	(iv)	24
	(b)	660
	(c)	663.9[0]
	(d)	1.5[0]