Question	Scheme	Marks	AOs
6(i)	Tries at least one value in the interval Eg $4^2-4-1=11$	M1	1.1b
	States that when $n=8$ it is FALSE and provides evidence $8^2-8-1=55=(11\times5)$ Hence NOT PRIME	A1	2.4
		(2)	
(ii)	Knows that an odd number is of the form $2n+1$	B1	3.1a
	Attempts to simplify $(2n+1)^3-(2n+1)^2$	M1	2.1
	……….and factorise $8n^3+8n^2+2n=2\left(4n^3+4n^2+1n\right)=$	dM1	1.1b
	with statement $2\times..$ is always even	A1	2.4
		(4)	
Alt (ii)	Let the odd number be 'n' and attempts n^3-n^2	B1	3.1a
	Attempts to factorise $n^3-n^2=n^2(n-1)$	M1	2.1
	States that n^2 is odd (odd $\times$ odd) and $(n-1)$ is even (odd -1)	dM1	1.1b
	States that the product is even ($\text{odd}\times\text{even}$)	A1	2.4
			(6 marks)

Notes: See above

(i)

M1: Attempts any n^2-n-1 for n in the interval. It is acceptable just to show $8^2-8-1=55$

A1: States that when $n=8$ it is FALSE and provides evidence. A comment that $55=11\times5$ and hence not prime is required

(ii)

See scheme for two examples of proof

Note that Alt (i) works equally well with an odd number of the form $2n-1$

For example $(2n-1)^3-(2n-1)^2=(2n-1)^2\{2n-1-1\}=(2n-1)^2\{2n-2\}=2\times(2n-1)^2\{n-1\}$