Sequences (Nth Term) Past Paper Questions (MS)

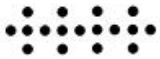
Q1.

Question	Working	Answer	Mark	Notes
(a)		Pattern	1	B1
(b)	7,10,13,16,19,22,25,28,31,34,37,40 43,46,49; or $3n+4$	49	2	M1 for method eg counting up in 3s (to at least pattern number 6; allow errors if intention is clear), diagram extension (ft), use of $3n+4$ (could be shown as part of a valid calculation eg 15×3) A1 49

Q2.

Paper: 5MB2F_01					
Question		Working	Answer	Mark	Notes
	(a)		diagram	1	B1diagram for pattern number 4
	(b)		9, 11	1	B1 could ft their diagram
	(c)		31	1	B1 could ft their table
	(d)		explanation	1	B1 explanation eg "adding on 2", $2n+1$ as a rule

Q3.

PAPER: 1MA0_2F					
Question		Working	Answer	Mark	Notes
	(a)			1	B1 cao
	(b)		17, 21	1	B1 for 17, 21 cao
	(c)		$4n + 1$	2	B2 for $4n + 1$ oe (B1 for $4n + k$, $k \neq 1$, or k is absent or $n = 4n + 1$)
	(d)		12	2	M1 for $(50 - 1) \div 4$ **or** evidence of using their formula from part (c) if in the form $an+b$ **or** repeated addition of 4 (at least 3) ft table in part (b) **or** 49 seen A1 cao

Q4.

Paper 1MA1: 1F			
Question	Working	Answer	Notes
(a)		drawing	C1 drawing of pattern number 4
(b)		42	C1 shows a process of working towards pattern number 20
			C1 cao
(c)		$n + 2$	C1 begins process of stating algebraic expression eg n
			C1 $n + 2$ oe

Q5.

PAPER: 5MB2H_01					
Question		Working	Answer	Mark	Notes
			$2n + 1$	2	M1 for $2n$ or $2n + k$ where $k \neq 1$ A1 for $2n + 1$

Q6.

Question		Working	Answer	Mark	Notes
	(a)		No with explanation	1	C1 no with explanation e.g. numbers in the sequence are even and 603 is not even or numbers in the sequence are multiples of 6 and 603 is not a multiple of 6 or $6n + 12 = 603$ with n is not an integer
	(b)		42 or multiple of 42	1	B1 42 or multiple of 42

Q7.

Question		Working	Answer	Mark	Notes
	(a)		$6n + 5$	2	B2 for $6n + 5$ (B1 for $6n + k$, where k is an integer or absent)
	(b)		no with explanation	2	M1 for "$6n + 5$" = 121 or any other valid method, eg counting on 6s to get to 119 (or more) A1 for no with complete explanation, eg $6n = 116$ will not give a whole number

Q8.

Question	Answer	Mark	Mark scheme	Additional guidance
(a)	$6n + 1$	B2	oe	
		(B1	for $6n + c$ where c is an integer $\neq 1$ or is missing)	
(b)	Shown with supportive working	M1	for $8 - 6n = -58$ or $8 - 6 \times 11 (= -58)$ **or** starts to list terms of the sequence, with at least 3 correct or any other valid method.	2, −4, −10, −16, −22, −28, −34, −40, −46, −52
		A1	shown with working or an explanation , eg Yes and 11 or 2, –4, –10, – 16, ..., –52, –58	May stop at −58 or ring if sequence continues

Q9.

		Working	Answer	Mark	Notes
	(a)		$6n - 3$	2	M1 for attempt to establish linear expression in n with coefficient of 6 e.g. $6n + k$ where k is an integer (accept $n = 6n - 3$ for one mark) A1 cao
	(b)		No + Reason	1	C1 ft from their answer to part (a) for decision and explanation eg " stating no and because all the terms in the sequence are odd **and** 150 is even" **or** "no and '$6n - 3$' = 150, n = 153/6 ... so n is not an integer" **or** Continuing the sequence to show terms 147 **and** 153 and state "no as 150 is not in the sequence" oe

Q10.

Question	Working	Answer	Notes
		$4n - 7$	M1 method to deduce nth term e.g. $4n + k$ A1 for $4n - 7$ oe