

SEQUENCES & SERIES (Q 5, PAPER 1)

2008

5 (a) Find the eleventh term of the arithmetic sequence 5, 14, 23 ...

(b) The n th term of a geometric sequence is

$$T_n = \frac{3^n}{27}.$$

(i) Find a , the first term.

(ii) Find r , the common ratio.

(iii) The k th term of the sequence is 243. Find k .

(c) The sum of the first n terms of an arithmetic series is given by $S_n = n^2 - 16n$.

(i) Use S_1 and S_2 to find the first term and the common difference.

(ii) Find T_n , the n th term of the series.

(iii) Find the values of $n \in \mathbf{N}$ for which $S_n = -63$.

ANSWERS

5 (a) 95

(b) (i) $\frac{1}{9}$

(ii) 3

(iii) 8

(c) (i) $a = -15, d = 2$

(ii) $2n - 17$

(iii) 7, 9