CSE-4103

Section-A

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**Problem:**

$x(n) = \{0, 2, -3, 1, \underset{\uparrow}{-2}, -1, 4, 3, -1, 0, \dots\}$

(i) $x(-n+2)$

(ii) $x(-n-2)$

(iii) $x(-2n+1)$

(iv) $x(-\frac{n}{3}-1)$

(v) $-x(-n+2)$

**Answers:**

(i) $x(n) = \{\dots, 0, 2, -3, 1, \underset{\uparrow}{-2}, -1, 4, 3, -1, 0, \dots\}$

$\Rightarrow x(n+2) = \{\dots, 0, 2, -3, 1, -2, -1, \underset{\uparrow}{4}, 3, -1, 0, \dots\}$

$\Rightarrow x(-n+2) = \{\dots, 0, -1, 3, \underset{\uparrow}{4}, -1, -2, 1, -3, 2, 0, \dots\}$

Ans.

(ii) $x(n) = \{\dots, 0, 2, -3, 1, -2, \underset{\uparrow}{-1}, 4, 3, -1, 0, \dots\}$

$\Rightarrow x(n-2) = \{\dots, 0, 2, -3, \underset{\uparrow}{1}, -2, -1, 4, 3, -1, 0, \dots\}$

$\Rightarrow x(-n-2) = \{\dots 0, -1, 3, 4, -1, -2, 1, \underset{\uparrow}{-3}, 2, 0, \dots\}$

(iii) $x(n) = \{\ldots, 0, 2, -3, 1, \underset{\uparrow}{-2}, -1, 4, 3, -1, 0, \ldots\}$

$\Rightarrow x(n+1) = \{\ldots, 0, 2, -3, 1, -2, \underset{\uparrow}{-1}, 4, 3, -1, 0, \ldots\}$

$\Rightarrow x(-n+1) = \{\ldots, 0, -1, 3, 4, \underset{\uparrow}{-1}, -2, 1, -3, 2, 0, \ldots\}$

$\Rightarrow x(-2n+1) = \{\ldots, 0, 3, 4, \underset{\uparrow}{-1}, 1, 2, \ldots\}$

(iv) $x(n) = \{\ldots, 0, 2, -3, 1, \underset{\uparrow}{-2}, -1, 4, 3, -1, 0, \ldots\}$

$\Rightarrow x(n-1) = \{\ldots, 0, 2, -3, \underset{\uparrow}{1}, -2, -1, 4, 3, -1, 0, \ldots\}$

$\Rightarrow x(-n-1) = \{\ldots, 0, -1, 3, 4, -1, -2, \underset{\uparrow}{1}, -3, 2, 0, \ldots\}$

$\Rightarrow x\left(-\frac{n}{3}-1\right) = \{\ldots, 0, 0, 0, -1, 0, 0, 3, 0, 0, 4, 0, 0, -1, 0, 0,$

$-2, 0, 0, \underset{\uparrow}{1}, 0, 0, -3, 0, 0, 2, 0, 0, \ldots\}$