Take Test: Test 3 (2018-19)

Test Information

Description	
Instructions	
Timed Test	This test has a time limit of 1 hour.This test will save and be submitted automatically when the time expires. Warnings appear when **half the time**, **5 minutes**, **1 minute**, and **30 seconds** remain.
Multiple Attempts	This Test allows 3 attempts. This is attempt number 1.
Force Completion	This Test can be saved and resumed at any point until time has expired. The timer will continue to run if you leave the test.
	This test does not allow backtracking. Changes to the answer after submission are prohibited.

⚠ Moving to the next question prevents changes to this answer.

Question **3** of **12**

Question 3

8 points Save Answer

Consider a beamformer which employes the following uniform linear array of N antennas.

$$\begin{bmatrix} -0.0938, & -0.0313, & 0.0313, & 0.0938 \\ 0, & 0, & 0, & 0 \\ 0, & 0, & 0, & 0 \end{bmatrix} \text{ in metres}$$

The carrier frequency is 2.4 GHz and to steer the main lobe of the array towards the direction $(\theta = 30^0, \phi = 0^0)$, the weight vector $\underline{w}$ should be

(a) $[1, \quad 1, \quad 1, \quad 1]^T$;

(b) $[-0.5902 - 0.8072i, 0.2089 + 0.9779i, 0.2089 - 0.9779i, -0.5902 + 0.8072i]^T$;

(c) $[+0.5902 - 0.8072i, -0.2089 + 0.9779i, -0.2089 - 0.9779i, +0.5902 + 0.8072i]^T$;

(d) $[-0.5902 + 0.8072i, 0.2089 - 0.9779i, 0.2089 + 0.9779i, -0.5902 - 0.8072i]^T$;

(e) none of the above

- a
- b
- c
- d
- e

⚠ Moving to the next question prevents changes to this answer.

Question **3** of **12**