

Unit 11 - Week 9

Course outline

How does an NPTEL online course work?

Practice Assignment

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

● Lecture 40 : Helical Antennas-I

● Lecture 41 : Helical Antennas-II

● Lecture 42 : Helical Antennas-III

○ Lecture 43 : Helical Antennas-IV

● Lecture 44 : Helical Antennas-V

● Study Material

○ Quiz : Assignment-9

○ Assignment-9 Solution

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Week 10

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Week 12

Text Transcripts

Assignment-9

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-04-01, 23:59 IST.

1) A helical antenna has diameter of 5.3 cm. At 5.4 GHz, the antenna will be operating in:

2 points

- Axial mode
 Normal mode
 Conical mode
 Both axial and normal mode

No, the answer is incorrect.
Score: 0

Accepted Answers:
Conical mode

2) If the wire diameter of an axial mode helical antenna is doubled, the bandwidth of the antenna will:

2 points

- Be doubled
 Be halved
 Be quadrupled (4 times)
 Remain almost the same

No, the answer is incorrect.
Score: 0

Accepted Answers:
Remain almost the same

3) The polarization of a 6-turn helical antenna with circumference equal to the wavelength (λ) and pitch angle (α) of 13° is:

2 points

- Horizontal
 Vertical
 Circular
 Elliptical

No, the answer is incorrect.
Score: 0

Accepted Answers:
Circular

4) A 6-turn axial mode helical antenna has HPBW of 44° . If the number of turns is increased to 10 and keeping all other dimensions the same, the HPBW will be, approximately:

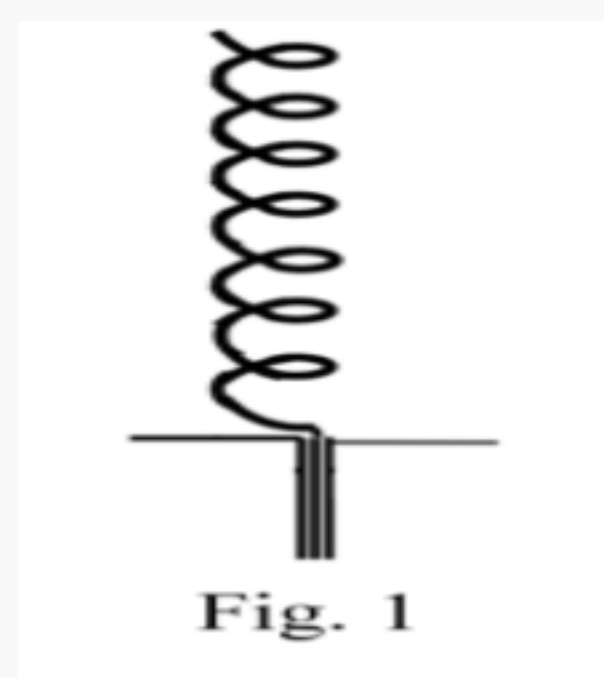
2 points

- 50°
 44°
 38°
 34°

No, the answer is incorrect.
Score: 0

Accepted Answers:
 34°

Common data for Questions 5 to 8: A helical antenna with a flat circular ground plane, as shown in Fig. 1, is to be designed to operate in axial mode for a minimum gain of 26 dBi at 2.45 GHz.



5) The diameter of the helix should be:

2 points

- 2.5 cm
 3.9 cm
 5.9 cm
 12.24 cm

No, the answer is incorrect.
Score: 0

Accepted Answers:
3.9 cm

6) The minimum number of turns should be:

2 points

- 240
 100
 70
 50

No, the answer is incorrect.
Score: 0

Accepted Answers:
240

7) The minimum diameter of the ground plane should be:

2 points

- 4.6 cm
 6.8 cm
 7.5 cm
 9.2 cm

No, the answer is incorrect.
Score: 0

Accepted Answers:
9.2 cm

8) If a 3×3 array of helices is used instead of the single helix, the spacing between the helix elements would be, approximately:

2 points

- 12.5 cm
 17.3 cm
 20.8 cm
 29.7 cm

No, the answer is incorrect.
Score: 0

Accepted Answers:
29.7 cm

9) A normal mode helical antenna is designed with the following parameters: diameter of helix (D) = 0.015λ , axial length of helix (A) = 0.15λ and number of turns (n) = 5. The approximate axial ratio for this antenna is:

2 points

- 14.3 dB
 19.2 dB
 28.7 dB
 38.4 dB

No, the answer is incorrect.
Score: 0

Accepted Answers:
28.7 dB

10) A normal mode helical antenna has circumference of 5 cm at 900 MHz. What should be the pitch angle (α) of the helix to achieve circular polarization?

2 points

- 14.2°
 12.6°
 10.8°
 4.3°

No, the answer is incorrect.
Score: 0

Accepted Answers:
 4.3°