# Unit 12 - Week 10

Course outline

How does an NPTEL online course work?

Practice Assignment

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## Assignment-10

**The due date for submitting this assignment has passed.** **Due on 2020-04-08, 23:59 IST.**
**As per our records you have not submitted this assignment.**

1) A horn antenna is designed using waveguide WR340. For $TE_{10}$ mode of operation, the antenna can be used at: **2 points**

- 0.9 GHz
- 1.8 GHz
- 2.45 GHz
- 5.8 GHz

No, the answer is incorrect.
Score: 0
**Accepted Answers:**
*2.45 GHz*

2) Practical value for maximum aperture phase error for E-plane sectoral horn antenna, as recommended in this course, is: **2 points**

- 45°
- 90°
- 135°
- 0°

No, the answer is incorrect.
Score: 0
**Accepted Answers:**
*45°*

3) Practical value for maximum aperture phase error for H-plane sectoral horn antenna, as recommended in this course, is: **2 points**

- 40°
- 90°
- 135°
- 0°

No, the answer is incorrect.
Score: 0
**Accepted Answers:**
*90°*

4) Polarization provide by the horn antenna with a waveguide operating in TE10 mode, as shown in Fig. 1, is: **2 points**

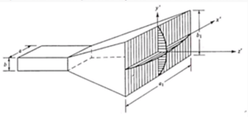

Fig. 1

- Circular
- Elliptical
- Vertical
- Horizontal

No, the answer is incorrect.
Score: 0
**Accepted Answers:**
*Vertical*

5) In a pyramidal horn antenna, for a fixed horn aperture, if the horn length (neck to mouth distance) is kept on increasing, the efficiency will, in general: **2 points**

- Keep on decreasing
- Keep on increasing
- Remain the same
- Increase to a certain value and then saturate

No, the answer is incorrect.
Score: 0
**Accepted Answers:**
*Increase to a certain value and then saturate*

6) As the aperture of a pyramidal horn antenna is kept on increasing, its directivity increases first and then decreases, because of: **2 points**

- Increased aperture phase error
- Decreased aperture phase error
- Decreased bandwidth
- Increased bandwidth

No, the answer is incorrect.
Score: 0
**Accepted Answers:**
*Increased aperture phase error*

**Common data for Questions 7 and 8:** A coaxial feed pyramidal horn antenna is designed at 1 GHz with the following dimensions: a = 25 cm and b = 10 cm, Aperture A = 50 cm and B = 40 cm and horn length from neck to mouth = 25 cm.

7) Assuming efficiency of 70%, approximate gain of the horn will be: **2 points**

- 10 dBi
- 13 dBi
- 16 dBi
- 20 dBi

No, the answer is incorrect.
Score: 0
**Accepted Answers:**
*13 dBi*

8) The coaxial feed should be kept at distance of _____ from the waveguide wall. ($\lambda_0$: Free space wavelength, $\lambda_g$: Guided wavelength) **2 points**

- $\lambda_g/4$
- $\lambda_0/4$
- $\lambda_g/2$
- $\lambda_0/2$

No, the answer is incorrect.
Score: 0
**Accepted Answers:**
*$\lambda_g/4$*

9) In a corrugated horn antenna, length of the teeth should be taken in the range of: ($\lambda_0$ is free space wavelength) **2 points**

- $0.02\lambda_0$-$0.1\lambda_0$
- $0.05\lambda_0$-$0.2\lambda_0$
- $0.2\lambda_0$-$0.3\lambda_0$
- $0.25\lambda_0$-$0.5\lambda_0$

No, the answer is incorrect.
Score: 0
**Accepted Answers:**
*$0.25\lambda_0$-$0.5\lambda_0$*

10) In an aperture-matched horn antenna, antenna performance is improved because: **2 points**

- Edge diffractions at the open ends are reduced
- Edge diffraction at the open ends are increased
- Antenna aperture is increased
- Feed losses are reduced

No, the answer is incorrect.
Score: 0
**Accepted Answers:**
*Edge diffractions at the open ends are reduced*