

X

NPTEL

reviewer2@nptel.iitm.ac.in ▼

Courses » Basics of Noise and its Measurements

Announcements Course Ask a Question Progress

## Unit 4 - Week 3



## Course outline

How to access the portal

Week 1

Week 2

Week 3

- Lecture 13: Transmission line equations
- Lecture 14: Planar Waves in Closed Tubes
- Lecture 15: Planar Waves in 1-D Open Tubes
- Lecture 16: A Semi-Infinite Tube and Overall Summary
- Lecture 17: 1-D Tubes with Imperfect Terminations
- Lecture 18: Measuring Impedance Through Kundt's Apparatus
- Quiz : Week 3: Assignment
- Week 3: Assignment solution

Week 4

Week 5

Week 6

## Week 3: Assignment

The due date for submitting this assignment has passed. **Due on 2017-02-14, 23:59 IST**  
As per our records you have not submitted this assignment.

1) What is the method by which  $Z_L$  can be determined using a Kundt's tube experiment with one microphone? 1 point

- Travelling microphone method.
- Fixed microphone method.
- Intermitted motion microphone method.
- None of the above.

**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**  
*Travelling microphone method.*

2) Which of the following options truly defines standing wave ratio ( $\rho$ ) ? 1 point

- $\rho = \text{Minimum pressure amplitude/Maximum pressure amplitude}$
- $\rho = \text{Maximum pressure amplitude/Minimum pressure amplitude}$
- $\rho = (2 * \text{Minimum pressure amplitude}) / \text{Maximum pressure amplitude}$
- $\rho = \text{Minimum pressure amplitude} / (2 * \text{Maximum pressure amplitude})$

**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**  
 *$\rho = \text{Maximum pressure amplitude/Minimum pressure amplitude}$*

3) A tube with imperfect termination is shown. At one end ,  $x=0$ , a material with specific acoustic impedance ( $Z_L$ ) is placed and at the other end a piston is resonating at harmonic frequency. From the following options choose the most appropriate statement regarding pressure and velocity of sound wave in the tube. 1 point

- $P(0, \omega) = 0$  and  $U(0, \omega) = 0$
- $P(0, \omega) \neq 0$  and  $U(0, \omega) = 0$
- $P(0, \omega) = 0$  and  $U(0, \omega) \neq 0$
- $P(0, \omega) / U(0, \omega) = Z_L$

**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**  
 *$P(0, \omega) / U(0, \omega) = Z_L$*

4) What is Specific acoustic impedance ( $Z$ ) ? 1 point

- Ratio of Complex velocity amplitude and Complex pressure amplitude.

Week 7

Week 8

- Ratio of Complex pressure amplitude and Complex velocity amplitude.
- Ratio of particle Velocity to pressure.
- Ratio of Pressure to particle velocity.

**No, the answer is incorrect.****Score: 0****Accepted Answers:***Ratio of Complex pressure amplitude and Complex velocity amplitude.*

5) Choose the correct option for the Transmission Line Equation.

1 point

- 
- 
- 
- 

**No, the answer is incorrect.****Score: 0****Accepted Answers:**6) In case of sound wave propagation in 1-D, the Specific acoustic impedance ( $Z_L$ ) depends upon \_\_\_\_\_.

1 point

- Medium of wave propagation.
- Boundary conditions of wave propagation
- Frequency and Position.
- All of the above.

**No, the answer is incorrect.****Score: 0****Accepted Answers:***All of the above.*

7) Sound wave in a closed 1-D tube is a \_\_\_\_\_.

1 point

- Standing wave.
- Travelling wave.
- Both.
- None of above.

**No, the answer is incorrect.****Score: 0****Accepted Answers:***Standing wave.*8) The figure given shows an open tube with a harmonically vibrating piston at one end,  $x = -l$ . Choose a statement which describes the state of acoustical pressure at position  $x=0$ . (Where  $P_+$  and  $P_-$  are the amplitude of complex pressures for forward and backward travelling acoustical wave.) **1 point**

- $P_+ = P_-$
- $P_+ = -P_-$
- $P_- = 0$
- $P_+ = 0$

**No, the answer is incorrect.****Score: 0**

**Accepted Answers:**

$$P_+ = -P_-$$

9) Value of Characteristic Impedance ( $Z_0$ ) for water at 20° C is \_\_\_\_.

1 point

- 1.48\*10<sup>5</sup> Pa-s/m
- 2.84\*10<sup>5</sup> Pa-s/m
- 3.48\*10<sup>5</sup> Pa-s/m
- 4.84\*10<sup>5</sup> Pa-s/m

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

$$1.48*10^5 \text{ Pa-s/m}$$



Previous Page

End

© 2014 NPTEL - Privacy & Terms - Honor Code - FAQs -

A project of



In association with



Funded by

Government of India  
Ministry of Human Resource Development

Powered by

