

X

NPTEL

noc17-me13@nptel.iitm.ac.in ▼

Courses » Fundamentals of Acoustics

Announcements **Course** Forum Progress Mentor

Unit 11 - Week 10: Reverb time and FFT ✎

Course outline

How to access the portal?

Week 01: Introduction and Terminology

Week 02: Concept Review

Week 03: Wave equation

Week 04: Transmission line equations

Week 05: 1-D Waves

Week 06: Power and spherical waves

Week 07: Spherical waves and interference

Week 10 assignment ✎

The due date for submitting this assignment has passed.

Due on 2017-04-04, 23:59 IST.

Submitted assignment

1) If there is a signal which is aperiodic, its amplitude and phase plots in frequency domain will be _____ **1 point**

- A piecewise continuous function.
- Continuous functions of frequency.
- Discrete points.
- None of the options are correct.

2) Consider Fourier series expansion for a periodic function with a period 2π , **1 point**

$$f(t) = \frac{1}{2}a_0 + \sum_{n=1}^{\infty} \{a_n \cos(nt) + b_n \sin(nt)\}$$

Which of the following is the correct expression for a_0 ?

- $a_0 = \frac{1}{\pi} \int_{-\pi}^{\pi} f(t) dt$
- $a_0 = \frac{1}{2\pi} \int_{-\pi}^{\pi} f(t) dt$
- $a_0 = \frac{1}{\pi} \int_0^{\pi} f(t) dt$
- $a_0 = \frac{1}{\pi} \int_{-\pi}^{2\pi} f(t) dt$

Week 08: Directivity and mufflers

Week 09: Sound in rooms

Week 10: Reverb time and FFT

- Lesson 1: Fourier Transform
- Lesson 2: Fourier Transform
- Lesson 3: Fourier Transform
- Lesson 4: Discrete Fourier Transform (DFT)
- Lesson 5: Discrete Fourier Transform (DFT)
- Lesson 6: Discrete Fourier Transform (DFT)
- Quiz: Week 10 assignment
- Week 10 assignment solution

Week 11: Weighting and loudness

Week 12: Miscellaneous topics and closure

3) When the time period of a function increases, the gap between its adjacent frequency components _____. **1 point**

- increases
- decreases
- remain same
- none of these options are correct

4) If f is the frequency of a signal and F_s is sampling frequency, then normalized circular frequency is defined as: **1 point**

- $2\pi f/F_s$
- $f/2F_s$
- f/F_s
- $F_s/2f$

5) Fourier transform can be used to extract _____. **1 point**

- magnitude of different frequency components of a signal.
- phase of different frequency components of a signal.
- magnitude and phase of different frequency components of a signal.
- none of these options correct

6) If the function $p(x)$ is even and aperiodic, and $r(\omega)$ is its representation in frequency domain. Then $r(\omega)$ is _____. **1 point**

- Purely imaginary.
- Purely real.
- Complex.
- None of the options are correct

7) The Fourier series solution for a piecewise continuous function does not converge at points of discontinuity. This is because of: **1 point**

- Gibb's phenomenon
- Computational transport phenomenon
- Combination of Gibb's and computational transport phenomenon
- None of the above

8) Consider a function, **1 point**

$$f(t) = \begin{cases} 2 & \text{when } -1 < t < 1 \\ 0 & \text{elsewhere} \end{cases}$$

The $f(t)$ can be represented as

$$\int_0^{\infty} [A(\omega) \cos \omega t + B(\omega) \sin \omega t] d\omega$$

then find $A(\omega)$,

- $(2\sin(\omega))/\pi\omega$
- $(4\sin(\omega))/\pi\omega$
- $(3\sin(\omega))/\pi\omega$
- 0

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

