

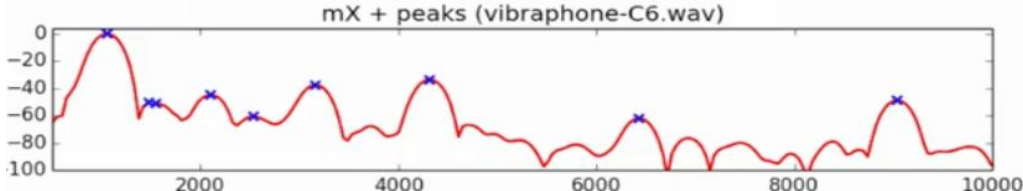


End Semester Examination – Nov/Dec – 2016

Code : 14MT2034
Sub. Name : Audio Signal Processing

Semester : 2016-17 ODD
Duration : 3hrs
Max. marks : 100

ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	What is Audio Signal Processing? Mention and explain atleast 5 applications of the field of Audio Signal Processing.	2,3	20
(OR)				
2.	a.	If the total number of samples (N) is given to be 4, find the DFT of the complex exponentials and the scalar product if $x(n) = [1,-1,1,-1]$.	2	20
3.	a.	Mention any 2 Application software for recording audio and playback. Discuss all their unique features in detail.	3	10
	b.	What are the various libraries used in Python for Audio Signal processing? Explain each one of them in detail.	3	10
(OR)				
4.	a.	Discuss in detail the 4 properties of DFT: Linearity, Shift, Symmetry and Convolution.	2	20
5.	a.	State and explain any 5 types of window analysis used in Audio Signal processing. Also mention their pros and cons.	2	20
(OR)				
6.	a.	Draw the block diagram of an STFT system and explain the process in detail.	1,2	20
7.	a.	How do you recognize the pitch and the harmonics by looking at the magnitude spectrum of a sound mentioned below: 	2,3	5
	b.	Discuss on how to detect the peak using sinusoidal model and track the time varying sinewave in Spectrogram.	3	15
(OR)				
8.	a.	What is Pitch and Harmonics in an audio signal? Discuss on methodologies to detect the harmonics in an audio signal. What are the conditions for the peak to be harmonic?	2,3	20
<u>Compulsory:</u>				
9.	a.	What is stochastic signals? How can it be described? What is the main analysis issue in stochastic model? Discuss any two approximation techniques used in stochastic model.	2,3	20

ALL THE BEST