

Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year, Semester VIII

Course Code: ETE801 and Course Name: Speech Processing

Time: 1 hour

Max. Marks: 50

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Note to the students: - All the Questions are compulsory and carry equal marks.

Q1.	The cochlea is a part of
Option A:	Outer ear
Option B:	Inner ear
Option C:	Middle ear
Option D:	Speech Mechanism
Q2.	Voiced sounds are _____.
Option A:	Noisy
Option B:	Loud
Option C:	Periodic
Option D:	Aperiodic
Q3.	The resonant frequencies of Vocal tract tube are called _____
Option A:	Resonants
Option B:	Variants
Option C:	Formants
Option D:	Pitch
Q4.	The air from the lungs will escape simultaneously through the mouth and the nose. Such sounds are called as _____ sounds.
Option A:	Nasalized
Option B:	Oral
Option C:	Voiced
Option D:	Voiceless
Q5.	Zero crossing rate is a simple measure of
Option A:	Frequency content of a signal
Option B:	Pitch of a signal
Option C:	Auto correlation
Option D:	Amplitude of the signal
Q6.	The energy of voiced signal is concentrated around
Option A:	30 KHz
Option B:	20 KHz
Option C:	3 Hz

Option D:	22 KHz
Q7.	The vocal tract is considered as a
Option A:	Circular cavity resonator
Option B:	Rectangular cavity resonator
Option C:	An Amplifier
Option D:	Terminator
Q8.	Autocorrelation is a function of
Option A:	Time
Option B:	Amplitude
Option C:	Frequency
Option D:	Time difference
Q9.	The short term average energy function is represented as
Option A:	$\sum x(m) ^2 w(n-m)$
Option B:	$\sum x(m) w(n-m)^2$
Option C:	$\sum x(m) w(n-m)$
Option D:	$\sum x(m) ^2 w(n-m)^2$
Q10.	A good frequency resolution requires
Option A:	Short window
Option B:	Long window
Option C:	Resolution does not depend on window size
Option D:	Multiple windows should be considered
Q11.	STFT is represented as
Option A:	$\sum x(m) w(n-m) e^{-j\omega m}$
Option B:	$\sum x(m) e^{-j\omega m}$
Option C:	$\sum x(n-m) w(n-m) e^{-j\omega m}$
Option D:	$\sum x(m) w(n+m) e^{-j\omega m}$
Q12.	The cepstrum is nothing but
Option A:	Inverse Fourier transform of Auto correlation
Option B:	Log of power spectrum
Option C:	Fourier transform of Autocorrelation
Option D:	Inverse Fourier transform of convolution
Q13.	PLP stands for
Option A:	Predictive linear parameters
Option B:	Predictive low pass parameters
Option C:	Perceptual linear prediction
Option D:	Perceptual linear parameters
Q14.	The stability of vocal tract function is decided by
Option A:	The location of the poles
Option B:	The location of the zeroes
Option C:	The location of the poles and zeroes

Option D:	The transfer function
Q15.	Impulse response of the vocal tract can be obtained from cepstral domain by using
Option A:	A window that passes a cluster away from the origin
Option B:	A window that passes a cluster near the origin
Option C:	A window that passes peaks in cepstral domain
Option D:	A window that truncates the cepstrum
Q16.	FS 1016 uses
Option A:	1 codebook
Option B:	3 codebooks
Option C:	4 code books
Option D:	2 codebooks
Q17.	The improvement over CELP coder is
Option A:	MP-LPC
Option B:	SELP
Option C:	Residual excited LPC
Option D:	Voice excited LPC
Q18.	Anti-resonators is added in speech synthesizer to allow
Option A:	The simulation of nasal tract effects, fricatives and plosives
Option B:	The simulation of voiced sounds
Option C:	The simulation of vowels
Option D:	The simulation of pitch
Q19.	The sampling frequency of speech signal is
Option A:	4 KHz
Option B:	22 KHz
Option C:	3KHz
Option D:	8 KHz
Q20.	The front end of the frequency synthesizer
Option A:	Converts each phonetic unit of the text into units like phrases, clauses and sentences.
Option B:	Assigns phonetic transcriptions to each word.
Option C:	Computes pitch contour, phoneme duration etc. which are then imposed on a speech signal
Option D:	Does normalization
Q21.	Pick up the wrong statement
Option A:	HMM is also treated as dynamic Bayesian network
Option B:	HMM is a statistical model where a system to be modeled is assumed as Markov process with hidden steps.
Option C:	IN HMM the state is not visible directly to the observer. But the output is visible
Option D:	In HMM, a model state and outputs are visible

Q22.	_____ filter form of vocal tract is modelled by linear predictive coding.
Option A:	Pole and zero
Option B:	All zero
Option C:	All pole
Option D:	No pole
Q23.	Dynamic Time warping is the method used for
Option A:	Predicting LPC coefficients
Option B:	Speech Synthesis
Option C:	Speech recognition
Option D:	Measuring similarity between two temporal sequences
Q24.	In falling intonation
Option A:	Pitch decreases with time
Option B:	Pitch rises with time
Option C:	Pitch falls and then rises
Option D:	Pitch rises and then falls
Q25.	Pitch and duration attachment comes under _____
Option A:	Prosody
Option B:	Phonetic Analysis
Option C:	Speech Synthesis
Option D:	Text Analysis