

[KZ 1011]

Sub. Code: 3003

**MASTER OF AUDIOLOGY AND SPEECH LANGUAGE PATHOLOGY
(MASLP) DEGREE EXAMINATION**

FIRST YEAR

PAPER III – SPEECH SCIENCE AND PRODUCTION

Q.P. Code : 433003

**Time : 3 hours
(180 Min)**

Maximum : 100 marks

Answer ALL questions in the same order.

I. Elaborate on :

	Pages (Max.)	Time (Max.)	Marks (Max.)
1. Describe acoustic theory of speech production	17	40	20
2. Explain different vibratory modes of vocal fold and describe single mass model of vocal fold vibration	17	40	20

II. Write notes on :

1. Explain the physiology of respiration	4	10	6
2. Write short note on forensic speech analysis	4	10	6
3. Describe neuromotor mechanism of speech system	4	10	6
4. Explain the terms Formants, Antiformants and Nasal murmur	4	10	6
5. Write short note on development of vocal fold	4	10	6
6. Explain intensity changing mechanism	4	10	6
7. Write short note on acoustic cues of vowels	4	10	6
8. Explain the application of spectrograms	4	10	6
9. Write short note on objective measurement of airflow	4	10	6
10. Write short note on acoustic characteristics of laughter	4	10	6

[LA 0412]

Sub. Code: 3003

**MASTER OF AUDIOLOGY AND SPEECH LANGUAGE PATHOLOGY
(MASLP) DEGREE EXAMINATION**

FIRST YEAR

PAPER III – SPEECH SCIENCE AND PRODUCTION

Q.P. Code : 433003

**Time : 3 hours
(180 Min)**

Maximum : 100 marks

Answer ALL questions in the same order.

I. Elaborate on :

Pages (Max.)	Time (Max.)	Marks (Max.)
-------------------------	------------------------	-------------------------

- | | | | |
|--|----|----|----|
| 1. Describe in detail the objective assessment of respiratory, phonatory, articulatory and resonatory systems of speech production | 17 | 40 | 20 |
| 2. Discuss the studies on Infant cry analysis and explain the spectrographic pattern of cry in clinical population | 17 | 40 | 20 |

II. Write notes on :

- | | | | |
|---|---|----|---|
| 1. Define lung volumes and lung capacities | 4 | 10 | 6 |
| 2. Write short note on speaker recognition system | 4 | 10 | 6 |
| 3. Explain the physiology of muscles of larynx | 4 | 10 | 6 |
| 4. Explain the brain areas involved in speech production | 4 | 10 | 6 |
| 5. Define mean flow rate, S/Z ratio and phonation quotient | 4 | 10 | 6 |
| 6. Describe vibratory modes of vocal folds | 4 | 10 | 6 |
| 7. Write short note on acoustic features of affricates | 4 | 10 | 6 |
| 8. Explain two mass model of vocal fold vibration | 4 | 10 | 6 |
| 9. Explain using spectrographic patterns the place of articulation cues for stop consonants | 4 | 10 | 6 |
| 10. Write short note on spirometer and its clinical application | 4 | 10 | 6 |

[LB 1012]

OCTOBER 2012

Sub. Code: 3003

MASTER OF AUDIOLOGY AND SPEECH LANGUAGE PATHOLOGY

(MASLP) DEGREE EXAMINATION

FIRST YEAR

PAPER III – SPEECH SCIENCE AND PRODUCTION

Q.P. Code : 433003

Time : 3 hours
(180 Min)

Maximum : 100 marks

Answer ALL questions in the same order.

I. Elaborate on :

Pages Time Marks
(Max.)(Max.)(Max.)

- | | | | |
|---|----|----|----|
| 1. The source filter theory of speech production. | 17 | 40 | 20 |
| 2. Neuro motor mechanism of the articulatory, phonatory and respiratory system. | 17 | 40 | 20 |

II. Write Notes on :

- | | | | |
|--|---|----|---|
| 1. Checking action. | 4 | 10 | 6 |
| 2. Variations in breathing patterns. | 4 | 10 | 6 |
| 3. Describe the anatomy, physiology and functions of the thyroartenoid muscle. | 4 | 10 | 6 |
| 4. Explain the prephonation phase. | 4 | 10 | 6 |
| 5. Relation between subglottal pressure and pitch. | 4 | 10 | 6 |
| 6. Mechanism of falsetto. | 4 | 10 | 6 |
| 7. Speaker recognition. | 4 | 10 | 6 |
| 8. Aerodynamics of stops. | 4 | 10 | 6 |
| 9. Spectrographic cues for vowels. | 4 | 10 | 6 |
| 10. Analysis of laughter. | 4 | 10 | 6 |

[LC 0413]

APRIL 2013

Sub. Code: 3003

MASTER OF AUDIOLOGY AND SPEECH LANGUAGE PATHOLOGY

(MASLP) DEGREE EXAMINATION

FIRST YEAR

PAPER III – SPEECH SCIENCE AND PRODUCTION

Q.P. Code : 433003

Time : 3 hours

Maximum : 100 marks

I. Elaborate on:

(2x20=40)

1. Pitch and intensity changing mechanism.
2. Application of spectrography in basic and applied research.

II. Write notes on :

(10X6=60)

1. Measurement of subglottal pressure during speech.
2. Muscles of larynx.
3. Explain bernoulli's effect and its application to phonation.
4. Transglottal pressure differential.
5. Development of larynx.
6. Nervous control for respiration.
7. Infant cry analysis.
8. Spectrographic cues for stops.
9. Speech analysis in forensic sciences.
10. Aerodynamics of nasals.

[LD 1013]

OCTOBER 2013

Sub.Code :3003

MASTER OF AUDIOLOGY AND SPEECH LANGUAGEPATHOLOGY

(MASLP) DEGREE EXAMINATION

FIRST YEAR

PAPER- III SPEECH SCIENCE AND PRODUCTION

Q.P. Code: 433003

Time: Three hours

Maximum : 100 Marks

Answer All questions

I Elaborate on:

(2x20 =40)

1. Explain the neurophysiological bases of speech production
2. What are nasals? Explain in detail the process of production of nasal sounds

II. Write Short notes on:

(10 x 6 = 60)

1. Vibratory modes of vocal fold
2. Two mass model
3. Subglottal pressure
4. Aerodynamics of vowels
5. Voice response systems
6. Nerve supply to intrinsic muscles of larynx
7. Spectrography
8. Acoustic characteristics of diphthongs
9. Laughter analysis
10. Instruments to assess respiration

[LF 1014]

OCTOBER 2014

Sub.Code :3003

**MASTER OF AUDIOLOGY AND SPEECH LANGUAGE PATHOLOGY
(MASLP) DEGREE EXAMINATION
FIRST YEAR
(2010-2011 Session onwards)
PAPER - III SPEECH SCIENCE AND PRODUCTION**

Q.P. Code: 433003

Time: Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Neurophysiological bases of speech production.
2. Applications of spectrograms.

II. Write notes on:

(10 x 6 = 60)

1. Pitch changing mechanism
2. Objective assessment of respiratory system
3. Development of vocal fold
4. Methods to measure subglottal pressure
5. Acoustic characteristics of vowels
6. Vagus nerve
7. Voice response systems
8. Analysis of cry in clinical population
9. Muscles of tongue
10. Aerodynamics of nasal sounds

[LH 0415]

OCTOBER 2015

Sub. Code: 3003

MASTER OF AUDIOLOGY & SPEECH LANGUAGE PATHOLOGY
(from 2011-2012 Session onwards)
FIRST YEAR
PAPER III – SPEECH SCIENCE AND PRODUCTION

Q.P. Code : 433003

Time : Three hours

Maximum : 100 marks

I. Elaborate on: (2 x 20 = 40)

1. Models of vocal fold vibration with illustration and clinical evidences.
2. Explain the physiology of respiration, its instrumental evaluation and clinical application with illustration.

II. Write notes on: (10 x 6 = 60)

1. Application of Infant cry analysis.
2. Neuromotor mechanism for articulatory system.
3. Lower airway dynamics.
4. Application of Linear predictive coding.
5. Application of spectrography in applied research.
6. Spectrographic patterns of laughter.
7. Notes on:
 - a. Speaker recognition system
 - b. Speech recognition system
8. Aerodynamics of fricatives.
9. Short time speech analysis techniques.
10. Speech synthesis for forensic analysis.

[LI 0416]

APRIL 2016

Sub. Code: 3003

**MASTER OF AUDIOLOGY & SPEECH LANGUAGE PATHOLOGY
FIRST YEAR
PAPER III – SPEECH SCIENCE AND PRODUCTION**

Q.P. Code : 433003

Time : Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Automatic speech recognition and its application.
2. Explain the physiology of articulation, its instrumental evaluation and clinical application.

II. Write notes on:

(10 x 6 = 60)

1. Application of Spectrographic analysis.
2. Neuromotor mechanism for respiratory system.
3. Upper airway dynamics.
4. Application of triangular unitary mass model.
5. Application of speech coding techniques in applied research.
6. Spectrographic analysis of laterals and glides.
7. Notes on:
 - a) One mass model.
 - b) EGG model.
8. Types of respiration.
9. Stress strain relationship.
10. Infant cry analysis.

[LJ 1016]

OCTOBER 2016

Sub. Code: 3003

**MASTER OF AUDIOLOGY & SPEECH LANGUAGE PATHOLOGY EXAMS
FIRST YEAR
PAPER III – SPEECH SCIENCE AND PRODUCTION**

Q.P. Code : 433003

Time : Three hours

Maximum : 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. Physiology and types of respiration with respiratory movements.
2. Vocal fold vibration with different models.

II. Write notes on: **(10 x 6 = 60)**

1. Speaker recognition system.
2. Aerodynamics of consonants.
3. Pitch changing mechanism.
4. Analyse laughter with spectrograph.
5. Upper airway dynamics.
6. Muscles of larynx.
7. Infant cry analysis.
8. Linear prediction coding.
9. Spectrographic cues for vowels.
10. Application of wide band bar spectrograms in identifying speech sounds.

[LK 0517]

MAY 2017

Sub. Code: 3003

**MASTER OF AUDIOLOGY & SPEECH LANGUAGE PATHOLOGY EXAMS
FIRST YEAR
PAPER III – SPEECH SCIENCE AND PRODUCTION**

Q.P. Code : 433003

Time : Three hours

Maximum : 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. Role of spectrogram in identifying place and manner of articulation with adequate diagrams.
2. Infant cry analysis in the disordered with adequate literature.

II. Write notes on: **(10 x 6 = 60)**

1. Vibratory modes of vocal folds.
2. Methods of respiratory analysis.
3. Aerodynamics of speech production.
4. Aerodynamics of fricatives and nasals.
5. Types of Spectrogram.
6. Acoustics of nasals.
7. Speech analysis in forensic sciences.
8. Analysis of laughter.
9. Application of spectrogram in infant cry analysis.
10. Methods of speech synthesis.

[LL 1017]

OCTOBER 2017

Sub. Code: 3003

**MASTER OF AUDIOLOGY & SPEECH LANGUAGE PATHOLOGY EXAMS
FIRST YEAR
PAPER III – SPEECH SCIENCE AND PRODUCTION**

Q.P. Code : 433003

Time : Three hours

Maximum : 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. Explain the application of spectrography in research.
2. Describe the neuro-physiological bases of speech production.

II. Write notes on: **(10 x 6 = 60)**

1. Development of the vocal fold.
2. Speech analysis in forensic sciences.
3. Aerodynamics of stops.
4. Spectrographic cues for vowels.
5. Short time speech analysis techniques.
6. Various types of spectrograms.
7. One mass model of vocal fold vibration.
8. Muscles of larynx.
9. Methods of respiratory analysis.
10. Studies on infant cry analysis.

[LN 1018]

OCTOBER 2018

Sub. Code: 3003

**MASTER OF AUDIOLOGY & SPEECH LANGUAGE PATHOLOGY EXAMS
FIRST YEAR
PAPER III – SPEECH SCIENCE AND PRODUCTION**

Q.P. Code : 433003

Time : Three hours

Maximum : 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. Elaborate on neurophysiological bases of articulatory system.
2. Describe the various spectrographic cues for stops, nasals and fricatives.

II. Write notes on: **(10 x 6 = 60)**

1. Shatuck-Huffnagel's model of speech production.
2. Types of spectrographs.
3. Vibratory modes of vocal folds.
4. Development of vocal fold.
5. Relationship between vowel height and velopharyngeal airway resistance.
6. Articulatory-aerodynamic relations of affricates.
7. Dell's activation model.
8. Source filter theory.
9. Voice response system.
10. Speech coding techniques.

[LO 0519]

MAY 2019

Sub. Code: 3003

**MASTER OF AUDIOLOGY & SPEECH LANGUAGE PATHOLOGY EXAMS
FIRST YEAR
PAPER III – SPEECH SCIENCE AND PRODUCTION**

Q.P. Code : 433003

Time : Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Techniques of Speech processing and analysis.
2. Models of Vocal fold Vibration.

II. Write notes on:

(10 x 6 = 60)

1. Physiology of laryngeal function.
2. Development of Vocal fold.
3. Neuromotor mechanism of articulatory system.
4. Spectrographic cues for vowels.
5. Infant cry analysis.
6. Aerodynamics of fricatives.
7. Application of spectrography in research.
8. Shatuck-Huffnagel's model of speech production.
9. Types of spectrographs.
10. Vowel height and velopharyngeal airway resistance.

[LP 1019]

OCTOBER 2019

Sub. Code: 3003

**MASTER OF AUDIOLOGY & SPEECH LANGUAGE PATHOLOGY EXAMS
FIRST YEAR
PAPER III – SPEECH SCIENCE AND PRODUCTION**

Q.P. Code : 433003

Time : Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Neurophysiological bases of Speech production.
2. Techniques of speech processing and analysis.

II. Write notes on:

(10 x 6 = 60)

1. Types of respiration.
2. Vocal fold physiology.
3. EGG.
4. Articulatory – aerodynamic relations of affricates.
5. Infant cry analysis.
6. Types of spectrography.
7. Mechanical properties of vocal fold vibration.
8. Acoustic theory of speech production.
9. One mass model of vocal fold vibration.
10. Spectrography in Research.

[LQ 1019]

NOVEMBER 2020
(MAY 2020 SESSION)

Sub. Code: 3003

MASTER OF AUDIOLOGY & SPEECH LANGUAGE PATHOLOGY EXAMS

FIRST YEAR

PAPER III-SPEECH SCIENCE AND PRODUCTION

Q.P..Code : 433003

Time : Three hours

Maximum : 100 Marks

I. Elaborate on :

(2x20=40)

1. Describe one glottal cycle of vocal fold vibration using the aerodynamic- myoelastic theory.
2. What is speech recognition ? Explain the challenging problems in speech recognition and also the implications of speech recognition in the current world.

II. Write notes on :

(10x6=60)

1. One mass model of vocal fold vibration.
2. Neuromotor mechanism of articulatory system.
3. Methods of speech synthesis.
4. Acoustics of vowels.
5. Analysis of laughter.
6. Any one model of speech production.
7. Explain any two measurement methods of oro-facial force physiology.
8. Application of spectrography.
9. Acoustic theory of speech production.
10. Influence of phonetic context and speaker variability on acoustic pattern of speech.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0321]

MARCH 2021

Sub. Code: 3003

(OCTOBER 2020 EXAM SESSION)

MASTER OF AUDIOLOGY AND SPEECH LANGUAGE PATHOLOGY

FIRST YEAR (From 2010-2011 onwards)

PAPER III - SPEECH SCIENCE AND PRODUCTION

Q.P. Code : 433003

Time : Three hours

Answer ALL Questions

Maximum : 100 Marks

I. Elaborate on :

(2x20=40)

1. Explain the coordination of respiratory and laryngeal systems in phonation. What are the sources of fluctuations in voice signal ? Briefly explain the functions of interarytenoids.
2. What are spectrographic features for laughter analysis and justify this analysis for understanding laryngeal physiology.

II. Write notes on :

(10x6=60)

1. Vocal fold physiology.
2. Infant cry analysis.
3. Aerodynamics of fricatives and nasals.
4. Speech analysis in forensic sciences.
5. Application of spectrogram in infant cry analysis.
6. Define turbulent and laminar airflow. How does these relate to speech sound production.
7. Spectrographic patterns of laughter.
8. Role of spectrogram in identifying place and manner of articulation.
9. Methods of respiratory analysis.
10. Influence of phonetic context and speaker variability on acoustic pattern of speech.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0222]

**FEBRUARY 2022
(OCTOBER 2021 EXAM SESSION)**

Sub. Code: 3003

**MASTER OF AUDIOLOGY AND SPEECH LANGUAGE PATHOLOGY
FIRST YEAR (From 2010-2011 onwards)
PAPER III - SPEECH SCIENCE AND PRODUCTION
Q.P. Code : 433003**

Time : Three hours

Answer ALL Questions

Maximum : 100 Marks

I. Elaborate on :

(2x20=40)

1. Vocal fold physiology and vibratory modes of vocal fold.
2. Acoustics of vowels and consonants.

II. Write notes on :

(10x6=60)

1. Methods of respiratory analysis.
2. Nerve supply to larynx.
3. Transfer function of vocal tract.
4. PRAAT software.
5. Aerodynamics of vowels.
6. Voice response systems.
7. Pitch changing mechanism.
8. Spectrograms.
9. Speaker recognition system.
10. Subglottic pressure measurement.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0522]

MAY 2022

Sub. Code: 3003

MASTER OF AUDIOLOGY AND SPEECH LANGUAGE PATHOLOGY

FIRST YEAR (From 2010-2011 onwards)

PAPER III - SPEECH SCIENCE AND PRODUCTION

Q.P. Code : 433003

Time : Three hours

Answer ALL Questions

Maximum : 100 Marks

I. Elaborate on :

(2x20=40)

1. Describe one glottal cycle of vocal fold vibration using the aerodynamic-myoelastic theory.
2. What is speech recognition? Explain the challenging problems in speech recognition and also the implications of speech recognition in the current world.

II. Write notes on :

(10x6=60)

1. One mass model of vocal fold vibration.
2. Neuromotor mechanism of articulatory system.
3. Methods of speech synthesis.
4. Acoustics of vowels.
5. Analysis of laughter.
6. Any one model of speech production.
7. Explain any two measurement methods of oro-facial force physiology.
8. Application of spectrography.
9. Acoustic theory of speech production.
10. Influence of phonetic context and speaker variability on acoustic pattern of speech.
