

# MANIPAL UNIVERSITY

**FRIST YEAR MASLP / MOT / MSc. MLT / MSc. RT / MSc. ECHOCARDIOGRAPHY /  
OPTOMETRY / MSc. MIT / MSc. RRT & DT DEGREE EXAMINATION – JUNE 2017**

**SUBJECT: STATISTICS & RESEARCH METHODS / ADVANCED BIOSTATISTICS & RESEARCH  
METHODOLOGY / BIOSTATISTICS / ADVANCED BIOSTATISTICS & RESEARCH  
METHODOLOGY / PAPER IV: EPIDEMIOLOGY & BIOSTATISTICS / PAPER IV: RESEARCH  
METHODOLOGY & BIOSTATISTICS / BIOSTATISTICS/ ADVANCED BIOSTATISTICS &  
RESEARCH METHODOLOGY**

Friday, June 02, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

1. **Define the following:**

- 1A. Any three measures of central tendency
- 1B. Qualitative and quantitative variables with examples
- 1C. Sampling errors and non-sampling errors
- 1D. Sampling frame, probability sampling and non-probability sampling

(3+2+2+3 = 10 marks)

- 2A. Write the properties of normal distribution. List any two applications of normal distribution.
- 2B. The mean rate of adenosine triphosphate among a sample of 30 insulin resistant children was found to be 6  $\mu\text{mol/g}$  of muscle/min with standard deviation of 2  $\mu\text{mol/g}$  of muscle/min. Find the 95% and 99% confidence intervals for the mean rate of adenosine triphosphate for the study population.

(5+5 = 10 marks)

- 3A. Define type I error, type II error, level of significance and power of a statistical test of significance.
- 3B. Hypothermia is a problem for extremely low birth weight infants. A study was conducted to investigate whether wrapping these infants in polyethylene bags in the delivery room and while they are being transferred to the neonatal intensive care unit affects the survival of babies. The results of the study conducted among 140 extreme low birth weight babies are given in the following table:

Warming treatment	Number of infants		Total
	Lived	dead	
Polyethylene bag	63	7	70
Traditional	61	9	70
Total	124	16	140

Test at 5% level of significance whether mortality among the extreme low birth weight infants is associated with the kind of warming treatment given. The table value for 5% level of significance is 3.84.

(4+6 = 10 marks)

4. Discuss independent sample t test and paired t test with an example.

(10 marks)

5. Explain case control study under the headings:

- i) design with the help of a flow chart
- ii) measure of strength of association
- iii) merits
- iv) demerits

(4+2+2+2 = 10 marks)

6A. Write a short note on randomization in clinical trials.

6B. A randomized controlled trial has been planned to compare the effects of low fat diet with the diet recommended by the American Diabetic Association. The outcome variable is the total cholesterol (in mg/dL). What is the minimum number of subjects required in each group to detect a difference in total cholesterol of 20 mg/dL between the two groups with 90% power and 5% level of significance? Based on the earlier experience the standard deviation of total cholesterol in the population is about 35 mg/dL. The table value for 90% power and 5% level of significance is 1.28 and 1.96 respectively.

(5+5 = 10 marks)

7. **Write short notes on:**

- 7A. Validity of diagnostic test
- 7B. Structure of research thesis
- 7C. Meta-analysis
- 7D. Logistic regression

(5 marks × 4 = 20 marks)



Reg. No.										
----------	--	--	--	--	--	--	--	--	--	--

## MANIPAL UNIVERSITY

FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – JUNE 2017

SUBJECT: SH 102 – CLINICAL LINGUISTICS  
(NEW REGULATION)

Monday, June 05, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ Answer Any FIVE questions.

1. What is semantics? Describe the development of semantics in children.  
(16 marks)
  
- 2A. Explain the genetic theory of language lateralization.  
2B. Explain the role of right hemisphere in language function.  
(8+8 = 16 marks)
  
3. Discuss the contribution of psycho-linguistics in the field of aphasia research.  
(16 marks)
  
- 4A. Explain the term “varieties of language.”  
4B. Explain Registers, Creole, and Pidgins.  
(10+6 = 16 marks)
  
- 5A. Write a brief account of major language families of India and the world.  
5B. Discuss the Cultural issues in Verbal and non-verbal communication.  
(8+8 = 16 marks)
  
6. Discuss the theories of second-language acquisition.  
(16 marks)
  
7. **Write briefly on the following:**  
7A. Language and Thought  
7B. Language Deficiency  
(8+8 = 16 marks)



## MANIPAL UNIVERSITY

## FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – JUNE 2017

SUBJECT: SH 103 – SPEECH SCIENCE AND PRODUCTION  
(NEW REGULATION)

Wednesday, June 07, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ Answer ALL the questions.

1. With a neat diagram explain sixteen mass model. How does this model capable of justifying efficient vocal fold vibration?

OR

2. What are the various measures of respiratory analysis? Briefly mention the methods of measurement of the same.

(16 marks)

3. Explain the upper airway dynamics of speech production with adequate literature support.

OR

4. Describe the neuromotor mechanism of articulatory system with experimental evidences.

(16 marks)

5. Discuss Mc.Neilage's model with its merits and criticisms.

OR

6. Critically evaluate the Dell's activation model of speech production. Give schematic diagrams wherever necessary.

(16 marks)

7. Write an essay on application of spectrography in applied research.

OR

8. "Perturbation theory predicts formant frequency for vowels" Comment.

(16 marks)

9. Explain the following:

9A. Cepstral analysis

9B. MFCC method

9C. Articulatory synthesis

9D. Semi-automatic method of speaker identification

(4 marks × 4 = 16 marks)

OR

10. What is the importance of laughter cry analysis? Explain the spectrographic patterns of the laughter.

(16 marks)





**MANIPAL UNIVERSITY****FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – JUNE 2017****SUBJECT: SH 104 – SPEECH AND LANGUAGE PROCESSING  
(NEW REGULATION)**

Friday, June 09, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ **Answer ALL the questions.**

1. Explain speech perception. Describe the perception of vowels based on contemporary models. (16 marks)

**OR**

- 2A. Formant transition is a crucial factor in stop perception. Comment.  
2B. Explain perception of diphthongs.

(12+4 = 16 marks)

- 3A. Explain word monitoring task.

- 3B. Explain word recognition under noise conditions with evidence from the literature.

(6+10 = 16 marks)

**OR**

- 4A. Describe the priming task. Present a brief review of studies on spoken word recognition using priming tasks.

- 4B. Describe phoneme triggered lexical decision task.

(12+4 = 16 marks)

5. Explain spoken word recognition with its stages in the light of existing models.

**OR**

6. Critically evaluate the cohort model of spoken word recognition.

(16 marks)

- 7A. Explain parsing and its types with examples.

- 7B. Describe the models of sentence comprehension.

(6+10 = 16 marks)

**OR**

8. Explain word and nonword reading based on the contemporary models of visual word recognition.

(16 marks)

9. Discuss the role of memory and attention in speech and language processing with evidence.

(16 marks)

**OR**

- 10A. Explain the basic capacities for perceiving the phonetic contrasts with empirical evidence.

- 10B. How do we cope with variability in speech signal? Discuss.

(8+8 = 16 marks)



Reg. No.																			
----------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

## MANIPAL UNIVERSITY

### FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – JUNE 2017

#### SUBJECT: SH 105 – VOICE AND FLUENCY DISORDERS (NEW REGULATION)

Monday, June 12, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ **Answer ALL questions.**

- 1A. “Acoustic evaluation of voice optimizes voice evaluation”. Discuss.  
1B. Describe the concept, process and interpretation of Electroglottography. (8+8 = 16 marks)

**OR**

2. Explain the currently in use tests of laryngeal measurement with their merits and demerits. (16 marks)

- 3A. Discuss in detail, the causes, changes, characteristics and management of presbyphonia.  
3B. In brief, describe the Confidential Voice Therapy. (12+4 = 16 marks)

**OR**

- 4A. Discuss the endocrine system in brief and its relevance to voice disorders.  
4B. “There is a need for SLPs to reorient their therapeutic skills for professional voice users.” Justify. (8+8 = 16 marks)

- 5A. Discuss the factors influencing the acceptability and intelligibility of alaryngeal speech.  
5B. Discuss the prosthetic aspects of TEP speech.

**OR**

- 6A. Discuss the procedure and relevance of Esophageal insufflation test.  
6B. Describe the role of SLPs in the assessment and management of Laryngectomees. (8+8 = 16 marks)

7. Describe the dimensions of fluency. Elaborate on the factors influencing the rate of speech. (16 marks)

**OR**

- 8A. Describe the characteristics and outcome of treatment for drug induced stuttering.  
8B. Provide acoustical evidences to indicate laryngeal dysfunction in stutterers. (10+6 = 16 marks)

- 9A. How do you determine the effectiveness of stuttering treatment?  
9B. Describe the method to estimate the severity of stuttering.

**OR**

- 10A. Differentiate fluency shaping versus stuttering modification technique.  
10B. Add a note on techniques based on operant principle. (8+8 = 16 marks)



Reg. No. 

--	--	--	--	--	--	--	--	--	--

## MANIPAL UNIVERSITY

**FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – JUNE 2017**

**SUBJECT: SH 106 – PSYCHOPHYSICS  
(NEW REGULATION)**

Wednesday, June 14, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ **Answer ALL questions.**

- 1A. Discuss the applications of theory of signal detection in the field of audiology.  
1B. Explain ROC and also mention its application in differential diagnosis.

**OR**

- 2A. Explain MAP and MAF. Discuss the clinical applications of MAP and MAF.  
2B. Discuss the equal loudness curves in detail.

(8+8 = 16 marks)

- 3A. Define masking. Briefly describe different types of masking.  
3B. Describe the factors affecting non-simultaneous masking.

(8+8 = 16 marks)

**OR**

4. Write an essay on methods to assess frequency resolution.

(16 marks)

- 5A. Discuss GDT, TMTF and also mention their clinical applications.  
5B. Discuss various factors affecting temporal processing.

**OR**

- 6A. What are adaptation and fatigue?  
6B. Discuss various factors affecting adaptation.

(8+8 = 16 marks)

7. Write an essay on mechanisms of pitch perception of complex tones.

(16 marks)

**OR**

- 8A. Briefly explain the different parameters affecting timbre.  
8B. Discuss the factors affecting pitch perception.

(8+8 = 16 marks)

9. What is binaural hearing? Discuss the importance of binaural hearing.

**OR**

10. Differentiate localization and lateralization. Discuss the models of binaural hearing.

(16 marks)





**MANIPAL UNIVERSITY****FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – JUNE 2017****SUBJECT: SH 107 – AUDITORY PHYSIOLOGY  
(NEW REGULATION)**

Friday, June 16, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

**✍ Answer ALL questions.**

1. Explain the anatomy of temporal bone and discuss its importance in hearing.

**OR**

2. Highlight the role of middle ear in audition.

(16 marks)

3. Describe various repair and regeneration processes observed in the cochlea.

**OR**

4. Discuss the micromechanics of cochlea and elaborate its blood supply.

(16 marks)

5. Discuss the anatomy of semi-circular canal. Elaborate on role of semi-circular canal in vestibular system.

(16 marks)

**OR**

6A. Highlight the salient properties of auditory nerve.

6B. Explain the vestibular spinal reflex.

(8+8 = 16 marks)

7A. Discuss the various functions of Cochlear nucleus.

7B. Describe the frequency coding at the higher brainstem structures dedicated to hearing.

**OR**

8A. SOC plays a significant role in localization. Discuss.

8B. Discuss the role of neurotransmitters present at the brainstem.

(8+8 = 16 marks)

9A. Discuss how intensity is coded at the auditory cortex.

9B. Discuss the role of neurotransmitters at the auditory cortex.

(8+8 = 16 marks)

**OR**

10. Auditory cortex possesses significant connections to other brain areas. Discuss.

(16 marks)

