

MANIPAL UNIVERSITY

**FIRST YEAR MASLP/MOT/M.Sc. MLT/M.Sc. RT (NR)/MASTER OF OPTOMETRY/M.Sc. MIT/
M.Sc. ECHOCARDIOGRAPHY & (2012 PT)/MSc. CARDIAC CATHETERIZATION AND
INTERVENTIONAL TECHNOLOGY DEGREE EXAMINATION – JUNE 2014**

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

Tuesday, June 03, 2014

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ **Answer ALL the questions.**

- 1A. Define the various measures of dispersion.
1B. Distinguish between sampling and non-sampling errors. (5+5 = 10 marks)
- 2A. Write a short note on binomial distribution.
2B. Define sampling distribution and standard error. A sample of 40 liver cirrhosis subjects were selected and the mean serum potassium level was observed to be 5.4 mEq/L with standard deviation of 1.8 mEq/L. Find the 99% confidence interval for mean serum potassium level among liver cirrhosis subjects. (The standard normal table value for 99% confidence level is 2.58). (5+ (2+3) = 10 marks)
- 3A. Define type I error, type II error, Level of significance, Power and P value.
3B. What do you mean by non-parametric tests? What are the advantages and disadvantages of non-parametric tests over parametric tests? (5+5 = 10 marks)
4. Twenty four experimental animals with vitamin D deficiency were divided equally into two groups. Group 1 received treatment consisting of a diet that provided vitamin D. The second group was not given any treatment. At the end of the experimental period, serum calcium levels were measured with the following results.

Group	Mean (mg/100ml)	Standard deviation (mg/100ml)
Treated	11.1	1.5
Untreated	7.8	2.0

- 4A. Name the statistical test used to test whether mean serum calcium levels differs significantly between the two groups.
4B. Write the null hypothesis and alternate hypothesis for the above test.
4C. What are the assumptions for this test?
4D. Compute the test statistic value.
4E. Briefly explain how do you take a decision about the acceptance or rejection of null hypothesis? (1+1+2+4+2 = 10 marks)

5A. A study was planned to find the prevalence of overweight among people in the age group of 40 to 50 years in an urban community. What is the minimum sample size required for the study if the absolute margin of error is fixed at 3% and confidence level of 95%? A similar study conducted three years before in the same population reported the prevalence of overweight as 18%. (The standard normal table for 95% confidence level is 1.96).

5B. What do you mean by blinding in RCTs? Briefly explain the various types of blinding.

(5+5 = 10 marks)

6. With the help of a flow chart explain the design of a case control study. Define the measure of strength of association between exposure and event in a case control study. Enumerate the advantages and disadvantages in a case control study.

(4+2+4 = 10 marks)

7A. In order to assess the validity of a diagnostic test, it was applied on 250 individuals with disease and 600 without disease. The test resulted in a positive diagnosis for 200 out of those with disease and 100 of those without disease. Construct appropriate 2×2 table and calculate sensitivity, specificity, positive predictive value and negative predictive value of the test.

7B. Write a short note on survival analysis.

(5+5 = 10 marks)

8. Explain the structure of a research protocol.

(10 marks)

MANIPAL UNIVERSITY

FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – JUNE 2014

SUBJECT: SH 102 – CLINICAL LINGUISTICS
(NEW REGULATION)

Thursday, June 05, 2014

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ Answer any FIVE questions.

1. What is sociolinguistics? Discuss its scope. (16 marks)
2. Write briefly on bilingualism. Describe language acquisition in bilingualism. (16 marks)
3. Write a brief note on the language families of India. Discuss some of the salient features of Indian languages. (16 marks)
4. 'Neurolinguistics is the study of relationship between language and brain'. Elaborate. (16 marks)
5. Compare and contrast cognitive and innateness theories of language acquisition. (16 marks)
6. What is discourse? Discuss the deviancies noticed in the discourse patterns of people with Stylistic variations in language. (16 marks)
7. Write short notes on any four of the following:
 - 7A. Cultural Issues
 - 7B. Child Directed Speech
 - 7C. Standard Vs Non Standard Dialect
 - 7D. Semantics
 - 7E. Deficit Hypothesis
 - 7F. Formal and Informal Style
 - 7G. Linguistic Determinism

(4 marks × 4 = 16 marks)

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FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – JUNE 2014

SUBJECT: SH 103 – SPEECH SCIENCE AND PRODUCTION

(NEW REGULATION)

Saturday, June 07, 2014

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ Answer ALL the questions.

✍ Draw neat labeled figures wherever appropriate.

1. Describe the methods of respiratory analysis. Mention the parameters measured and their normative values.

(16 marks)

OR

- 2A. Explain the various modes of vocal fold vibration and significance in voice production. Briefly explain the role of macula flava.

- 2B. Describe the microanatomy of BMZ.

((8+4)+4 = 16 marks)

3. Elaborate on neurophysiological bases of articulation.

(16 marks)

OR

4. Explain aerodynamics of nasal sounds. Briefly explain the relation between the vowel height and the velopharyngeal airway resistance.

(10+6 = 16 marks)

5. How does the open loop models differ from closed loop models? Describe McNeilage's model briefly.

(10+6 = 16 marks)

OR

- 6A. Explain how Dell's model reproduces sound errors in speech.

- 6B. Elaborate on Shatuck-Huffnagel's model of speech production.

(8+8 = 16 marks)

7. Describe the various spectrographic cues for fricatives and nasals.

OR

8. Explain "locus" with the help of diagrams. Explain the importance of locus in reading speech through spectrograms.

(16 marks)

- 9A. What is aural perceptual method of speaker identification?

- 9B. Differentiate between speech recognition and speaker identification.

(4+12 = 16 marks)

OR

10. Describe the speech analysis techniques and briefly explain the specific application of each.

(16 marks)



MANIPAL UNIVERSITY**FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – JUNE 2014****SUBJECT: SH 104 – SPEECH AND LANGUAGE PROCESSING
(NEW REGULATION)**

Monday, June 09, 2014

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ Answer ALL questions.

- 1A. Describe the cues for perception of vowels.
1B. How is the perception of consonants different from vowel perception?
(8+8 = 16 marks)

OR

2. Discuss the effect of coarticulation in the perception of vowels and consonants.
(16 marks)
- 3A. Discuss upon the Phoneme triggered lexical decision task pertaining to spoken word recognition.
3B. Distinguish between the method of continuous speech and speeded repetition of words in the field of word recognition.
(8+8 = 16 marks)

OR

- 4A. Studies related to priming have always taken a forefront in the field of language processing. Justify with supporting studies.
4B. A variety of studies have been done to study the processing of words under noisy conditions. Discuss.
(10+6 = 16 marks)
5. How are the concepts of activation and competition relevant to study spoken word processing? Which are the models that abide by this concept?
(16 marks)

OR

- 6A. How does phoneme restoration differ from the phoneme monitoring task? Explain.
6B. Distinguish between the stages of phonological encoding and phonological production pertaining to word processing.
(10+6 = 16 marks)
- 7A. Explain word and non-word reading from the perspective of DRC model.
7B. Distinguish between syntactic and lexical ambiguity.
(10+6 = 16 marks)

OR

8A. What do you mean by visual word recognition?

8B. Describe the role of phonology in visual word recognition.

(4+12 = 16 marks)

9A. Describe basic capacities for perceiving phonetic contrasts giving evidences from recent studies.

9B. Discuss the role of attention in speech and language processing.

(8+8 = 16 marks)

OR

10A. Comment on the prosodic organization in native language.

10B. Describe the speech processing in a foreign language contrasts.

(8+8 = 16 marks)



MANIPAL UNIVERSITY**FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – JUNE 2014****SUBJECT: SH 105 – VOICE AND FLUENCY DISORDERS
(NEW REGULATION)**

Wednesday, June 11, 2014

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

- ✍ Answer ALL the questions.
✍ Draw neat labeled figures wherever appropriate.

- 1A. Describe Cepstral analysis of voice.
1B. Explain the principle and procedure involved in carrying out stroboscopy. (4+12 = 16 marks)

OR

- 2A. MAFR is a valuable tool in the understanding of laryngeal valving mechanism. Justify.
2B. EGG is a boon to Speech Pathologists. Justify your viewpoint. (6+10 = 16 marks)

3. Discuss the voice problems seen in individuals with endocrinal disorders. (16 marks)

OR

- 4A. Define muscle tension dysphonia. Describe its types.
4B. Enumerate the voice problems seen in singing teachers. (6+10 = 16 marks)

5. Discuss the role of team members in the rehabilitation of laryngectomees.

OR

6. List the acoustic and perceptual features associated with esophageal speech, TEP speech and artificial laryngeal speech. (16 marks)

- 7A. Discuss the need for speech language pathologist to possess the knowledge of developmental patterns of fluency.

- 7B. Discuss the EXPLAN model. Describe the association between linguistic competency and fluency of speech. (8+8 = 16 marks)

OR

- 8A. Differentiate between the characteristics of neurogenic stuttering and developmental stuttering.

- 8B. With the support of recent literature, discuss stuttering as a motor speech disorder. (6+10 = 16 marks)

9A. Counseling is an integral part of fluency assessment and intervention program. Discuss with reference to adult and childhood stuttering.

9B. Cluttering assessment should not be limited to evaluating dysfluencies. Discuss.

(8+8 = 16 marks)

OR

10A. Prolongation is a dysfluency as well as a fluency enhancement technique. Discuss.

10B. Discuss the recent literature supporting and contradicting the efficacy of psychologically based techniques for fluency enhancements.

(8+8 = 16 marks)

MANIPAL UNIVERSITY
FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – JUNE 2014
SUBJECT: SH 106 – PSYCHOPHYSICS
(NEW REGULATION)

Friday, June 13, 2014

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ **Answer ALL questions.**

- 1A. Write on any three classical procedures for threshold tracking.
- 1B. If a researcher defines “threshold as minimum level at which stimulus can be identified at least 75% of the time”, then simple staircase procedure will not suit his research need. State whether this statement is true or false. Justify your answer.

(12+4 = 16 marks)

OR

- 2A. Two subjects (X & Y) participated in the hearing test. Subject ‘X’ achieved a hit rate of 0.80 and a false alarm rate of 0.25. Subject ‘Y’ achieved a hit rate of 0.80 and a false alarm rate of 0.40. Identify the participant with more sensitivity and also identify the liberal responder. Briefly, state how will you convert the liberal responder into a conservative responder. Justify your answer.
- 2B. How do you apply the concept of signal detection theory in audiology?

(6+10 = 16 marks)

- 3A. Describe any three methods to study frequency resolution in detail.
- 3B. With adequate literature support explain the variation in auditory filter characteristics with variation in frequency and intensity.

(12+4 = 16 marks)

OR

- 4A. Elaborate on forward masking.
- 4B. Explain the mechanisms of masking.
- 5A. Discuss the factors involved in gap detection task.
- 5B. What is effect of frequency on adaptation?

(8+8 = 16 marks)

(12+4 = 16 marks)

OR

- 6A. Define adaptation. Briefly describe the mechanism of adaptation.
- 6B. Compare and contrast adaptation and fatigue.

(6+10 = 16 marks)

7. Define pitch. Write an essay on mechanism and models for the pitch perception.

(16 marks)

OR

8A. Write a note on any two scales of pitch.

8B. Write an essay on factor affecting pitch perception.

(4+12 = 16 marks)

9A. Explain any one model of localization.

9B. Write on localization deficits in individual with bilateral sensori neural hearing loss who is fitted with bilateral BTE hearing aids.

(8+8 = 16 marks)

OR

10. **Write short notes on following:**

10A. Minimum audible angle

10B. Duplex theory

10C. Cone of confusion

10D. Binaural beats

(4 marks × 4 = 16 marks)

MANIPAL UNIVERSITY
FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – JUNE 2014
SUBJECT: SH 107 – AUDITORY PHYSIOLOGY
(NEW REGULATION)

Monday, June 16, 2014

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ **Answer ALL questions.**

- 1A. Pinna and external auditory meatus play a significant role in hearing. Discuss.
1B. Describe the acoustic reflex pathway. Highlight the significance of auditory reflex.

OR

- 2A. Explain the anatomy of temporal bone and discuss its importance in hearing.
2B. Discuss the middle ear transformer function.

(8+8 = 16 marks)

- 3A. Discuss the dynamics of cochlear fluid.
3B. Describe various proteins in the cochlea with their specialized functions.

OR

- 4A. Discuss various phenomena which indicate the nonlinear behavior of cochlea.
4B. Outline the salient features of cochlear micro phonics and summing potential.

(8+8 = 16 marks)

- 5A. Highlight the structures and contents of internal auditory meatus.
5B. Explain the vestibular ocular reflex.

OR

- 6A. What is action potential? Discuss various properties of action potential with its significance.
6B. Outline the anatomy of the vestibular system.

(8+8 = 16 marks)

- 7A. Discuss the role of central auditory system in localization.
7B. Describe how intensity is coded at the higher brainstem structures dedicated to hearing.

OR

- 8A. Write a short essay on the effects of efferent auditory pathway on cochlear nucleus, auditory nerve and cochlea.
8B. Describe how speech is coded at the cochlear nucleus.

(8+8 = 16 marks)

- 9A. With recent literature evidences discuss the plasticity observed at auditory cortex.
9B. Outline the tonotopic organization of primary and secondary auditory areas.

OR

- 10A. Discuss how frequency is coded at the auditory cortex.
10B. Highlight the neurobiological relationship between auditory cortex and other areas of CNS.

(8+8 = 16 marks)

