

MSC SP - AA 010/LA 010

M.Sc. I Sem. Examination, November/December 2004
(Semester Scheme) (Common Paper)
Audiology/Speech-Language Pathology
Research Methods in Speech-Language and Hearing

Time: 3 Hours

Max. Marks: 80

Instruction: Answer all questions.

- I. 1. a) Describe what is clinical and applied research with examples. 10
b) Discuss various measures of hearing acuity and communicative behaviour. 6
- OR
2. a) Discuss the methods of observation. 8
b) Discuss normative research and standard group comparison with examples. 8
- II. 3. a) Discuss single subject designs with an example. 10
b) Describe the outline of a typical diagnostic report on an adult client. 6
- OR
4. a) Discuss the ethics of research. 8
b) What are the problems common to design strategies ? 8
- III. 5. a) List 20 journals in which articles on speech and hearing occur. 10
b) Critically evaluate the methods used in research on auditory physiology. 6
- OR
6. a) Discuss the methods unique to research in the area of speech perception. 8
b) Discuss any two studies in speech and hearing as established in standard journals. 8
- IV. 7. a) What were the major developments and inventions in speech research between 1970-1990 ? 8
b) Discuss research methods used in audiology research in the period 1950-1960. 8

OR

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8. a) What were the major developments and inventions in audiology research between 1970-1990 ? 8
- b) Critically evaluate research methods used in speech pathology in the period 1950-1960 and suggest how one can improve on them. 8
- V, 9. a) What are the methods of research used in Linguistics ? 10
- b) Discuss methods adopted to derive epidemiological data in communication disorders. 6
- OR
10. a) Suggest a research proposal to study epidemiology of language disorders.
- b) Discuss any one experimental research used in acoustics as applicable to language research. 8
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MSCSP/AA 020/LA 020

M.Sc. (SLP)/M.Sc. (Aud.) I Sem. Examination, Nov./Dec. 2004
(Common Paper) (Integrated Semester System)
Speech and Hearing
Statistics in Speech-Language and Hearing

Time: 3 Hours

Max. Marks: 80

Instruction : Answer all questions.

- I. 1. a) Discuss the application of statistical inference in speech-language pathology and audiology with specific examples. 10
b) Briefly describe measures of central tendency and variability. 6
- OR
2. a) What do you mean by probability ? Explain briefly the laws of probability with suitable examples. 10
b) Write notes on Chi-square and population estimate. 6
- II. 3. a) What are the basic assumptions underlying analysis of variance ? 4
b) Calculate 'F value and interpret the obtained F value with the significance level for the data given below : 12

Subjects	Control Gp.	Exptl Group - 1	ExptL Group - 2
A	6	12	16
B	5	14	12
C	4	13	14
D	6	12	14
E	5	12	14
F	5	12	15

OR

4. a) Differentiate between correlation and regression with suitable examples. 6

- b) Calculate correlation co-efficient for the data given below and interpret the obtained correlation. 10

Subject / Candidates->	A	B	C	D	E	F	G
Marks in PSY	12	14	12	10	10	12	14
Marks in AUD	11	17	13	8	9	16	18

- III. 5. a) Differentiate between parametric and non-parametric statistics with specific examples. 8
- b) Apply the'Mann-Whitney U'test for the data given below and indicate whether there is difference between X and Y in significant. 8

X	47	44	40	35	32	31	30	29	25	24	10	12
Y	48	45	43	42	39	36	33	28	23	21	15	14

6. a) What do you mean by non-normal distributions ? Explain the reasons for non-normal distributions. 10
- b) Describe the central limit theorem. 6
- IV. 7. a) What are the methods employed in the analysis of qualitative data ? Describe in detail. 8
- b) Calculate contingency co-efficient for the table given below and comment on its significance. 8

Sex

Response	Male	Female
YES	75	30
NO	25	70

- OR
8. a) Give detailed accounts on Kappa co-efficient and content analysis. 10
- b) Describe various types of log-linear models with suitable examples. 6
- V. 9. a) Critically analyse the need for multivariate analysis in the speech-language and hearing field. 10
- b) Explain the assumptions underlying multi-dimensional scaling. 6
- OR.
10. a) Explain the various methods employed in the multi-variate analysis with examples. 8
- b) Explain the term 'principal component analysis'. 8

MSC SP-AA 030/LA 030

M.Sc. I Sem. Examination, Nov./Dec. 2004
(Semester Scheme) (Common Paper)
Audiology/Speech Language Pathology
Technology for Speech-Language and Hearing

Time : 3 Hours

Max. Marks : 80

Instruction: Answer all questions.

- I. 1. a) Explain, with the help of a neat block diagram, the working of a D.C. power supply. 5
- b) Explain the working of a 4-bit binary counter. 5
- c) List out the specifications of a personal computer that you would like to buy for audiology clinic. Justify your specifications. 6

OR

2. a) Describe briefly the different types of magnetic memory devices used in a computer. 8
- b) Describe briefly the structure of a CD and illustrate how information is written into it. 6
- c) Define (a) bit and (b) byte. 2
- II. 3. a) Describe the concept of satellite communication. How do you employ it for telerehabilitation of your clients ? 6
- 4 b) Discuss the advantages of DSP over analog processing. 7
- c) Write a brief note on delta modulation. 3

OR

4. a) How do you code a speech waveform using pulse code modulation ? 5
- b) What are the advantages of FM transmission over AM transmission ? How do you make use of FM technology in a classroom for hearing impaired ? 5
- c) Describe how a D/A converter transforms a given digital value to an equivalent analog value. 6
- III. 5. a) How do you generate a broadband click stimulus ? Explain with the help of a neat sketch. 5
- b) What factors would you consider, with respect to electrodes, to elicit a good ABR recording ? Are these factors different for recording with cup and needle electrodes ? If yes, then how are they different ? 9
- c) What is a condensation click and a rarefaction click ? 2

OR

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6. a) What is averaging ? Why is it done ? How do you do that in evoked potential system ? What is the difference in averaging between ABR recording and EEG recording, and why ? 10
- b) Describe the concept of CMR and explain how it eliminates noise. 6
- IV 7. a) Describe the compression techniques used in hearing aids. 10
- b) What is template matching technique ? Where is it employed ? What is the rehandle of the technique and how is it realized ? 6
- OR
8. a) Explain the working of a FM hearing aid (with a block diagram). Discuss the merits of FM system over other group hearing systems. 10
- b) Describe the different classes of speech recognition systems. 6
- V. 9. a) Discuss the advantages of CT over X-ray imaging. 6
- b) Explain how ultrasound analysis can be utilized in blood flow studies. 4
- c) Discuss the complexities involved in EEG recording and how do you solve them ? 6
- OR
10. a) Draw a block diagram of an EMG system and describe the functioning of each block. What is the application of EMG techniques in speech research ? 6
- b) Explain briefly the working principles of MRI. 4
- c) Draw a block diagram of a CT scanner and explain the function of each block. 6
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MSC SP/LA 040

M.Sc. I Sem. Examination, Nov./Dec. 2004
(Semester Scheme)
Speech and Hearing
Speech and Language Pathology
Neurobiology of Speech and Language

Time: 3 Hours

Max. Marks: 80

Instruction : Answer *all* questions.

- I 1 . a) What are some contemporary theories of language representation in the brain? **10**
b) **What** is the role of facial, auditory, vagus and glossopharyngeal nerves in speech function ? **6**
- OR
2. a) What is the role of subcortical areas in the production of language ? **8**
b) What are the primary neural structures involved in understanding speech ? **8**
- II. 3. a) Explain the role of memory in language acquisition. Cite examples from language disorderes. **10**
b) How does attention aid in language acquisition ? **6**
- OR
4. a) Explain what is short-term memory and long term memory. How do they influence language acquisition ? **12**
b) What is attention deficit disorder ? **4**
- III. 5. a) Compare any one magnetic neuro imaging technique with metabolic technique. **8**
b) "ERP techniques have enhanced the potential of a neurolinguistic research". Discuss the above statement with suitable examples. **8**
- OR
6. a) What is the difference between an invasive and noninvasive procedure ? **6**
b) "Modern imaging techniques are harmful to the brain". Discuss. **10**
- IV. 7. a) What are the functions of different types of cells in the central nervous system ? **8**
b) "Damaged nerves are able to regenerate". Discuss. **8**

OR

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8. a) Explain any one speech disorder where there is a known breakdown in neurotransmitter pathway. 10
- b) Write in detail on excitatory post synaptic potential and inhibitory post synaptic potential. 6
- V. 9. a) "Aging brings about some changes in the brain structures". Discuss. 6
- b) Trace the continuous changes in speech-language that are traditionally associated with aging". Discuss on measures to be adopted to halt the changes in speech. 10
- OR
10. a) Discuss the changing pattern of cerebral dominance with aging from childhood to old age say upto 65 years. 6
- b) Discuss the changes in speech-language as a result of normal aging as compared to pathological aging. 10
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MSCSP/LA 050

M.Sc. I Sem. Examination, Nov./Dec. 2004
(Semester Scheme)
Speech Language Pathology
Clinical Linguistics and Multilingual Issues in Communication

Time: 3 Hours

Max. Marks: 80

Instruction : Answer all the questions.

- Unit I. 1. a) Compare and contrast linguistics with clinical linguistics. 10
b) How does clinical linguistics differ from neurolinguistics ? 6
- OR
2. "Knowledge of clinical linguistics is essential for a speech-language pathologist". Discuss. 16
- Unit II. 3. a) What is phonology ? 4
b) Differentiate between segmental and non-segmental phonology. 4
c) Explain how distinctive feature analysis is useful in correcting misarticulation of speech sounds. 8
- OR
4. a) What is syntax ? Outline any one method of syntactic analysis. 8
b) How do children acquire syntax ? 8
- Unit III. 5. a) Elaborate on the concept of mental lexicon. 8
b) How do you make semantic analysis of disordered speech ? 8
- OR
6. a) "A person with good linguistic competence need not necessarily have good pragmatic competence". Elaborate. 8
b) Write a note on pragmatic ability of autistic children. 8
- Unit IV. 7. a) Highlight the major issues in sociolinguistics. 10
b) What are the differences between standard and non-standard dialects? 6
- OR
8. a) Write how knowledge of sociolinguistics can improve efficiency of a speech-language pathologist. 12
b) What are Creoles and pidgins ? 4