

MSCSH/AA 010/LA 010

I M.Sc. (I Sem.) Examination, December 2003 Speech and Hearing Research Methods in Speech-Language and Hearing Audiology/Speech-Language Pathology (Common Paper)

Time: 3 Hours

Max. Marks: 80

Instruction: Answer all questions.

- I. 1. a) Describe normative research and experimental research with examples. 10
1. b) Discuss any two levels of measurements. 6
2. a) Describe client assisted and covert measurements. 8
2. b) Discuss the role of evaluation research with examples. 8
- II. 3. a) Discuss different types of time-series designs with examples in audiology. 10
3. b) Differentiate longitudinal and cross-sectional designs. 6

OR

4. a) Discuss the organization and format of writing an experimental research. 8
4. b) Explain Solomon 4-group research design with suitable example. 8
5. a) List 20 journals in which articles on speech and hearing occur. 10
5. b) Critically evaluate the methods used in fluency research. 6

OR

6. a) Discuss the methods unique to research on prosody. 8
6. b) Discuss implications of research in speech pathology between 1990-2000. 8
- IV. 7. a) How did our understanding of stuttering changed between 1930's and 1990's ? 8
7. b) Elaborate how the advent of , DSP technology has changed audiological practice since 1980. 8

OR

8. a) Critically evaluate any two studies on learning disability. 8
8. b) Discuss research methods used in language pathology in the period of 2nd world war. 8
- V. 9. a) What are the methods of research used in acoustics ? 10
9. b) Discuss methods adopted to derive epidemiological data on hearing loss, 6
- OR
10. a) Absence of epidemiological section on hearing loss in India has seriously hampered in the planning of programs for hearing impaired children. Discuss. 8
10. b) "Sensitivity and specificity are the hallmarks of empirical based assessment tools". Discuss. 8
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MSC SH/AA 020/LA 020

M.Sc. (SLR)/M.Sc. (Aud.) I Semester Examination, December 2003
(Integrated Semester Scheme)
Audiology/Speech, Language Pathology (Common Paper)
Speech and Hearing
Statistics in Speech - Language and Hearing

Time: 3 Hours

Max. Marks: 80

Instruction: All questions are compulsory.

- I. 1) a) Explain the measures of central tendency and variability and their features. 10
b) Describe the terms 'hypothesis' and 'hypothesis testing'. 6

OR

- 2) a) Describe the various methods of correlation. Differentiate between correlation and regression. 8
b) Apply X^2 (chi-square) test for the data given below and comment on its significance assuming equiprobability principle. S;

Responses	Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
Frequency	15	12	6	17	70

- II. 3) a) Explain one-way and two-way analysis of variance and their applicability. 6
b) Calculate 'F' value for the data given below and interpret the obtained F value. 10

Performance

Group A	10	12	13	14	14
Group B	9	11	12	14	15
Group C	14	14	12	16	11

OR

- 4) a) What are 'post-hoc tests'? Explain any two types of post-hoc tests. 8
b) Explain the basic assumptions underlying repeated measure ANOVA with suitable examples. 8

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III. 5) a) Explain the use of non-parametric tests in speech-language and hearing with suitable examples. 8

b) Apply Man-Whitney U test for the data given below and indicate whether the difference between A & B is significant. 8

A	10	44	60	71	11	.42	70	14	12	17
B	32	60	72	92	51	64	81	50	41	54

OR

6) a) Describe various reasons causing non-normal distributions and their consequences. 8

b) Explain the theorem pertaining to 'central limit'. 8

IV. 7) a) What are contingency tables? Calculate contingency co-efficient for the data given below and comment on its significance. 10

Sex/Response	Agree	Disagree
Boys	10	50
Girls	40	20

b) Write short notes on: 6

a) Kappa co-efficient and .

b) log linear models.

OR

8) a) What are the different methods of measuring association? Explain their applicability. 8

b) Differentiate between qualitative and quantitative data and various methods to analyse them. 8

V. 9) a) What do you mean by 'path analysis'? Explain briefly the steps involved in path analysis. 12

b) Write notes on discriminant function analysis. 4

OR

10) a) Explain the various steps involved in principal component analysis. 10

b) Differentiate between MANOVA and MANCOVA. 6

MSCSH/AA 030/LA 030

M.Sc. I Sem. Examination, December 2003 Audiology/Speech Language Pathology (Common Paper) Technology for Speech-Language and Hearing

Time : 3 Hours

Max. Marks : 80

Instruction: Answer *all* questions.

- I. 1. a) What is an operating system ? How is it different from an application software ? Describe with a neat diagram, the requirements for digital signal processing in a computer. 8
- b) What is a truth table ? What is an OR gate and an AND gate ? Why are they so called? Construct the truth table for an OR gate and an AND gate. 8

OR

2. a) What is noise ? What is white noise ? Discuss the different types of noise seen in an amplifier output. 6
- b) What is a flip-flop circuit ? Give a few examples for bistable devices. Explain with a neat diagram, how do you construct a JK flipflop for purposes of counting. 10
- II. 3. a) What is the importance of digital signal processing? Explain, with neat diagrams, an A/D, and D/A circuit. What is the role of filters in A/D and D/A conversion? 10
- b) What is AM and FM transmission ? How are FM and AM receivers different? What is the usefulness of FM transmission and reception for a hearing therapist ? 6

OR

4. a) Describe different digital modulation techniques and their application in speech analysis. 12
- b) Describe the terms filtering, sampling and quantization with reference to digital signal processing.
- III. 5. a) Describe with a neat block diagram, the parameters, assessed in evaluating a hearing aid. 10
- b) Write a note on BIS for body-work hearing aids. 6

OR

6. a) Describe the functioning of a true digital hearing aid with the help of a neat diagram.
- b) Describe how a speech scientist can be helpful to a communication engineer in designing a speaker recognition system. 6

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- IV. 7. a) Describe the characteristics, with illustration, of sinusoidal stimuli used to elicit auditory evoked potentials. 9
- b) Describe the terms differential amplification, CMMR, artifact rejection, filtering and signal averaging with reference to an ABR systems. 7
- OR
8. a) Describe how do you make sure that the temporal characteristics of click and tonebursts are on you intended them to be for presentation. 12
- b) Write a brief note on electrodes used in ABR recording. 4
- V. 9. a) How relevant is, telerehabilitation in speech and hearing field ? What areas of audiology practice can be augmented by telerehabilitation ? 10
- b) Write an essay on tools for genetic analysis that are of importance to a speech-hearing professional. 6
- OR
10. a) What is the relevance of fMRI for a speech-language pathologist ? Describe the principles of a CT scan and MRI scan. 10
- b) Describe the rationale of cortical blood flow technique. What is its relevance to a language pathologist ? 6
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MSCSH/LA 040

M.Sc. I Semester Examination, December 2003

Speech Language Pathology

Neurobiology of Speech and Language

Time : 3 Hours

Max. Marks : 80

Instruction: Answer all questions.

- I. 1. a) What are the primary neural structures involved in speech production ? 10
b) As a speech language pathologist, what are the functions you would test for Vth, VIIth, Xth and XIIth cranial nerves ? How would you carry out the test ? 6

OR

2. a) Draw a neat diagram of the brain stem and indicate the originating points of cranial nerves important for speech and language. 8
b) What are the differences between localization theory and equipotential theory ? State the contribution of each of these to the understanding of brain - language relationship. 8

- II. 3. a) Draw a relationship between memory and cognition. Discuss their importance in language acquisition process. 10
b) What are the subcortical structures that influence attention ? 6

OR

4. a) Differentiate between focussed attention and sustained attention. 4
b) How does a deficit in short-term memory affect language acquisition and what are its implications ? 12

- III. 5. a) Describe in brief any two neuroimaging techniques that could be used for functional assessment of speech and language in a child with brain damage. 10
b) Discuss the relevance of the above for rehabilitation program. 6

6. a) What are Event Related Potentials (ERPs)? What are the benefits and limitations of using ERPs in linguistic and neurolinguistic research? 10
b) Discuss the merits and demerits of techniques to evaluate the organic Vs functional status of cortex. 6

- IV. 7. a) What are neurotransmitters ? 3
b) How are they classified ? 5
c) Write brief notes on Norepinephrine and Dopamine. 8

OR

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8. a) Discuss briefly on the role of any two neurotransmitters that mediate speech and language function. 8
- b) How do we facilitate the functions of neurotransmitters communication disorders? Discuss with clinical case studies. 8
- V. 9. a) What are the changes reported in brain structures due to aging ? 8
- b) What are the various causes of dementia associated with aging ? 8
- OR
10. a) Write in detail about the neuropathology seen in Alzheimer's disease. 9
- b) How does dementia associated with Alzheimer's disease affect the day to day life of a person ? Focus on communicative function. 7
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MSCSH/LA050

M.Sc. I Semester Examination, December 2003 Speech Language Pathology Clinical Linguistics and Multilingual Issues in Communication

Time: 3 Hours

Max. Marks: 80

Instruction: Answer *all* Units.

- Unit I) 1) a) What is clinical linguistics? Elucidate with suitable examples. 8
b) Discuss the relevance of clinical linguistics in a multilingual context. 8
OR

- 2) a) What is nonsegmental phonology ? Distinguish it from segmental phonology. 8
b) Distinguish between phonological and grammatical disability with suitable examples. 8

- Unit II. 3) a) What are distinctive features ? Explain their clinical relevance. 8
b) Describe different types of semantic disability. 8

OR

- 4) a) What is componential analysis ? Explain with examples. 8
b) Distinguish between phonological, grammatical and semantic acquisition. 8

- Unit III. 5) a) Write a note on the application of the principles of morphemic analysis in a clinical situation. 8
b) What is semantics? Distinguish between lexical and non-lexical semantics. 8

OR

- 6 a) Explain the nature of pragmatic disability by contrasting with normal pragmatic ability. 8
b) Write a note on the parameters of variation in language. 8

- Unit IV. 7 a) Elucidate on pidgins and Creoles. - 8
Identify and place the language families in India within the larger scene of the language families of the world. 8

OR

- 8) a) What is linguistic determinism ? Explain. 8
b) What are the issues in rehabilitation with special reference to India ? 8

- Unit V. 9) a) What is a morpheme ? How is it different from the phoneme and the word ?
Explain different types of morphemes. 8
b) Write a note on the principles of clinical application of phonemic analysis. 8

OR

- 10) a) Elucidate with examples the notion of 'mental lexicon'. 8
b) What is synonymy, antonymy and hyponymy ? Explain with appropriate examples. 8
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