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MANIPAL UNIVERSITY

FRIST YEAR MASLP / MSc. MLT / MSc. NMT / MSc. MIT / SECOND SEMESTER M.Sc. CLINICAL PSYCHOLOGY / MSc MRP / M.Sc. HHIA / MSc MIT DEGREE EXAMINATION – DECEMBER 2016

SUBJECT: STATISTICS & RESEARCH METHODS (SH 101) / BIOSTATISTICS / ADVANCED BIOSTATISTICS & RESEARCH METHODOLOGY (PAPER IV) / BIOSTATISTICS / ADVANCED BIOSTATISTICS & RESEARCH METHODOLOGY (MCP 106) / RESEARCH METHODOLOGY & BIOSTATISTICS / EPIDEMIOLOGY & BIOSTATISTICS (MHI 606) / BIOSTATISTICS (MIT 203)

Thursday, December 15, 2016

Time: 10:00 – 13:00 Hrs. Max. Marks: 80

Answer ALL the questions.

1A. Define mean, median, mode, standard deviation and coefficient of variation.

1B. Define sample and sampling.

1C. What are the characteristics of a good sample?

(5+2+3 = 10 marks)

2A. Define sampling distribution and standard error.

2B. Explain the formula for 95% confidence interval for:

i) Mean

ii) Proportion

iii) Difference between two means

iv) Difference between two proportions

(2+ (2 marks × 4) = 10 marks)

3A. Explain the test used for comparing the mean of a variable before and after an intervention in a sample of individuals.

3B. In a survey, 246 urban school children and 349 rural school children were examined for conductive hearing loss. Out of 246 urban children, 36 suffered from conductive hearing loss while among rural school children 61 suffered with hearing loss. Test whether the proportion of hearing loss differs between urban and rural children at 5% level of significance. The table value is given as 3.84.

(5+5 = 10 marks)

4. Discuss with suitable examples:

i) ANOVA ii) Repeated measures ANOVA

(5+5 = 10 marks)

5. Explain the design, analysis, merits and demerits of a randomized controlled trial.

(10 marks)

6A. Describe cross sectional study design with an example.

6B. A study has been planned to compare the mean hearing thresholds levels between urban and rural children. How many children are required in each group if an average difference of 4 decibels is considered as clinically important with 80% power and 1% level of significance? The standard deviation of hearing threshold level is expected to be 7 decibels. The table value for 80% power and 1% level of significance is 0.84 and 2.58 respectively.

(5+5 = 10 marks)

7. Explain the structure of a research protocol.

(10 marks)

8. **Write short notes on:**

8A. Reliability of a diagnostic test

8B. Systematic reviews and meta-analysis

(5+5 = 10 marks)

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FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – DECEMBER 2016

SUBJECT: SH 103 – SPEECH SCIENCE AND PRODUCTION

(NEW REGULATION)

Friday, December 16, 2016

Time: 10:00 – 13:00 Hrs. Max. Marks: 80

✍ **Answer ALL the questions.**

1A. Describe the air pressure and airflow measures of aerodynamic evaluation of speech production.

1B. Briefly explain the forces of respiration.

(12+4 = 16 marks)

OR

2A. With graphical representations illustrate stress-strain relation to elucidate mechanical properties of the vocal folds.

2B. What is EGG model of vocal fold vibration?

(12+4 = 16 marks)

3A. Elaborate on how aerodynamics of vowels differ from that of stops.

3B. Explain the physiology of resonatory system.

(10+6 = 16 marks)

OR

4. Update on the neuromotor mechanism of articulatory system.

(16 marks)

5A. Explain the clinical significance of DIVA model of speech production.

5B. What is open loop model of speech production?

(12+4 = 16 marks)

OR

6. Critically evaluate Kozhavnikov-Chistovich model of speech production.

(16 marks)

7. Describe the acoustic characteristics of affricates and fricatives. Mention the various differences between them acoustically.

(12+4 = 16 marks)

OR

8. Discuss perturbation theory of speech production in relation to understanding of formants.

(16 marks)

9. Elaborate on spectrographic patterns of infant cries with relevant studies from literature.

(16 marks)

OR

10. **Explain the following:**

10A. FFT

10B. Spectrum

10C. Spectrogram

10D. Features of Laughter

(4 marks × 4 = 16 marks)

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FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – DECEMBER 2016

SUBJECT: SH 104 – SPEECH AND LANGUAGE PROCESSING

(NEW REGULATION)

Saturday, December 17, 2016

Time: 10:00 – 13:00 Hrs. Max. Marks: 80

✍ **Answer ALL the questions.**

1. What is speech perception? Compare and contrast the cues for perception of stop and fricative consonants.

OR

2. Discuss the models of vowel perception. How is the perception of vowels different from perception of diphthongs or semivowels?

(16 marks)

3. Describe the experimental methods used in the study of spoken word recognition.

(16 marks)

OR

4A. Explain phoneme triggered lexical decision.

4B. Describe cross modal priming with empirical evidence.

(8+8 = 16 marks)

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

OR

6A. Compare and contrast cohort with logogen model of spoken word recognition.

6B. Explain phoneme restoration.

(12+4 = 16 marks)

7. Explain visual word recognition. Describe word and nonword reading using any contemporary model of visual word recognition.

(16 marks)

OR

8A. Explain sentence comprehension from modular view.

8B. Explain discourse comprehension and production.

(8+8 = 16 marks)

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

(16 marks)

OR

10A. Explain processing of semantic and pragmatic aspects of language.

10B. Compare native and non-native language contrasts.

(8+8 = 16 marks)

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FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – DECEMBER 2016

SUBJECT: SH 105 – VOICE AND FLUENCY DISORDERS

(NEW REGULATION)

Monday, December 19, 2016

Time: 10:00 – 13:00 Hrs. Max. Marks: 80

✍ **Answer ALL questions.**

1A. Explain Cepstral analysis and Inverse Filtering of voice.

1B. Describe the principle and procedure of MDVP as in CSL.

(8+8 = 16 marks)

OR

2A. Describe the procedure of obtaining MAFR measures and its clinical relevance in the diagnosis of dysphonia.

2B. "EGG depicts characteristic laryngographs". Discuss

(6+10 = 16 marks)

3A. Discuss the voice problems seen in geriatric population.

3B. Discuss the condition of Muscle Tension Dysphonia and its types.

(8+8 = 16 marks)

OR

4A. Comment on the recent techniques of management to address resonance problems.

4B. Discuss the value of Vocal Functional Exercises in professional voice users.

(8+8 = 16 marks)

5A. Mention the various types of surgeries for laryngeal cancer with their implications on voice.

5B. Discuss the mechanisms of source, vibrator, articulator and resonator in laryngeal vs the various alaryngeal modes.

(6+10 = 16 marks)

OR

6A. Describe the various methods of teaching esophageal speech to a laryngectomee.

6B. Differentiate Primary vs Secondary TEP and comment on the merits and demerits of both.

(10+6 = 16 marks)

7. Advances in radiology and genetics have led to better understanding of stuttering. Justify the statement.

(16 marks)

OR

8A. Cluttering is also language disorder. Justify the statement.

8B. Describe the environmental factors that contribute to the onset and development of stuttering.

(10+6 = 16 marks)

9A. Describe the various factors that can influence the disfluency analysis.

9B. Describe the clinician related factors that cause relapse in stuttering.

(8+8 = 16 marks)

OR

10. What is speech naturalness? Describe the parameters of naturalness. How do you measure the naturalness of speech?

(16 marks)

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FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – DECEMBER 2016

SUBJECT: SH 106 – PSYCHOPHYSICS
(NEW REGULATION)

Tuesday, December 20, 2016

Time: 10:00 – 13:00 Hrs. Max. Marks: 80

✍ **Answer ALL questions.**

1A. With appropriate examples describe the concepts of sensitivity and criterion point.

1B. Write a note on staircase procedure and PEST. List their merits and demerits.

OR

2A. Discuss the mechanism and models of loudness perception.

2B. Describe the association between intensity and loudness with reference to Fechner's and Steven's law.

(8+8 = 16 marks)

3. What is co-modulation masking release (CMR)? Discuss the different factors that affect CMR.

OR

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

(16 marks)

5. Explain how spectral characteristics of the stimulus and cochlear hearing loss affect gap detection.

OR

6. Write an essay on procedure to obtain and factors affecting temporal modulation transfer function.

(16 marks)

7. Describe in detail about the factors that affect pitch perception pure and complex tones.

OR

8. Explain the relationship between characteristic frequency and relative difference limen for frequency with reference to Weber's law. Write in detail about the different factors that affect difference limen for frequency.

(16 marks)

9. With literature support explain the localization ability of an individual with bilateral moderate sensori neural hearing loss who is fitted with CIC hearing aid in both ears.

OR

10. Elaborate on models of binaural masking level difference.

(16 marks)

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FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – DECEMBER 2016

SUBJECT: SH 107 – AUDITORY PHYSIOLOGY

(NEW REGULATION)

Wednesday, December 21, 2016

Time: 10:00 – 13:00 Hrs. Max. Marks: 80

Answer ALL questions.

1. Pinna and external auditory meatus play a significant role in hearing. Discuss

OR

2. Describe the acoustic reflex pathway. Highlight the significance of auditory reflex.

(16 marks)

3A. Elaborate on various proteins in the cochlea and their functions.
3B. Discuss the dynamics of cochlear fluids.

(8+8 = 16 marks)

OR

4. Discuss the features of cochlear microphonics and summating potentials.

(16 marks)

5A. Highlight the structures and contents of internal auditory meatus.
5B. Explain the vestibular ocular reflex with its clinical significance.

(8+8 = 16 marks)

OR

6A. Discuss the frequency and intensity coding at the level of auditory nerve.
6B. Discuss the anatomy of semi-circular canal. Highlight differences in the role of semi-circular canal with respect to other vestibular structures.

(8+8 = 16 marks)

7A. Discuss the role of lateral laminiscus and inferior colliculus in localization.
7B. Describe how intensity is coded at the higher brainstem structures dedicated to hearing.

(8+8 = 16 marks)

OR

8A. SOC plays a significant role in localization. Discuss
8B. Discuss the role of neurotransmitters present at the brainstem structures for auditory processing.

(8+8 = 16 marks)

9A. Elaborate on frequency coding at the level of auditory cortex.
9B. Highlight the neurobiological relationship between auditory cortex and other areas of CNS.

(8+8 = 16 marks)

OR

10A. Discuss how complex signal is coded at auditory cortex.
10B. With a neat diagram explain the anatomy of auditory cortex.

(8+8 = 16 marks)