MANIPAL UNIVERSITY

FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – MAY/JUNE 2013

SUBJECT: SH 101: STATISTICS & RESEARCH METHODS

(NEW REGULATION)

Tuesday, May 28, 2013

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

✍   **Answer all questions.**

1.   Define the following:

1A.   Alternate hypothesis

1B.   Type II error

1C.   P- value

1D.   Level of significance

1E.   Parameter

(1×5 = 5 marks)

2A.   Define various measures of central tendency and write the situations where each one is appropriate.

2B.   Explain the method of systematic sampling and state its merits and demerits.

(5+5 = 10 marks)

3A.   A researcher identified coronary risk factors among men and women in a long term health care facility. Of the 250 male subjects, 62 had hypertension. Of the 1100 female subjects, 265 had hypertension. Construct 95% confidence interval for difference in proportions of hypertension between male and females and interpret it.

3B.   A sample of 500 students participated in a study to evaluate the level of their knowledge of risk factors for a certain group of diseases and the result is given below:

Course	Knowledge of risk factors		
	Good	Poor	Total
Paramedical	72	50	122
Engineering	58	320	378
Total	130	370	500

Do these data suggest that there is an association between knowledge of risk factors for the group of disease and major field of study from which the present sample is drawn? (Let $\alpha=0.05$, Chi square for 1 degree of freedom= 3.84).

(5+5 = 10 marks)

4A. Explain the design, conduct and analysis of cohort study.

4B. A group of 5000 men with the habit of chewing tobacco and another group of 8000 men without the habit were followed up for a specified length of time, to assess the association between tobacco chewing and oral cancer. At the end of follow up 45 cases were observed among the chewing group and 22 cases among non-chewers group. Construct a 2×2 table for this information. Obtain the strength of association between tobacco chewing habits and oral cancer. Interpret the findings.

(10+5 = 15 marks)

5A. Discuss about materials and methods in a research report.

5B. Briefly explain the multivariate technique used for the analysis of time-to event data.

(5+5 = 10 marks)

6.   Write short notes on:

6A. Sample size determination for estimation of mean

6B. Wilcoxon signed rank test

6C. Analysis of Variance

6D. Regression

6E. Systematic reviews

6F. Binomial distribution

(5×6 = 30 marks)

MANIPAL UNIVERSITY

FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – MAY/JUNE 2013

SUBJECT: SH 102 – CLINICAL LINGUISTICS

(NEW REGULATION)

Thursday, May 30, 2013

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

✍   **Answer any FIVE questions.**

1. Does your knowledge of sociolinguistics help you in understanding speech, language disorders better? Substantiate your answer by suitable examples.

   (16 marks)

2. What is neurolinguistics? Discuss its scope.

   (16 marks)

3A. Discuss the issues related to language and gender.
3B. Make a critical evaluation of Sapir-Whorf hypothesis.

   (8+8 = 16 marks)

4. What do you mean by pragmatic ability? Discuss how pragmatic ability is affected in children with autism and learning disability.

   (16 marks)

5. Describe the theories of second language acquisition in detail.

   (16 marks)

6. Briefly describe major language families of the world.

   (16 marks)

7. **Write short notes on any FOUR of the following:**

7A. Aggramatism
7B. Major Language Families
7C. Dialect
7D. Motherese
7E. Anaphora
7F. Creole
7G. Critical Period

   (4×4 = 16 marks)

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MANIPAL UNIVERSITY
FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – MAY/JUNE 2013
SUBJECT: SH 106 – PSYCHOPHYSICS
(NEW REGULATION)

Saturday, June 01, 2013

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

1A. Discuss any two adaptive procedures for threshold tracking.
1B. Write a short note on Steven's law.

(10+6 = 16 marks)

OR

2A. Elaborate on applications of signal detection theory in audiology.
2B. Write a note on softness imperceptions.

(12+4 = 16 marks)

3A. Discuss the critical band concept.
3B. Explain any four methods to study critical bands.

(4+12 = 16 marks)

OR

4A. Explain the mechanisms behind forward masking.
4B. Write in brief about co modulation masking release.

(8+8 = 16 marks)

5A. Write an essay on detection of gaps in pure tone and narrow band noise.
5B. Write few clinical applications of gap detection tests.

(8+8 = 16 marks)

OR

6A. What are the measures to quantify fatigue? Explain in brief.
6B. What are the factors that influence fatigue?

(2+14 = 16 marks)

7A. What is missing fundamental?
7B. Explain the mechanisms behind perception of missing fundamental.

(2+14 = 16 marks)

OR

8A. What is stream segregation?
8B. What are the informations used for stream segregation?

(2+14 = 16 marks)

9A. Write in brief about binaural adaptation and binaural interference.
9B. Write a note on onset and on-going disparities in lateralizing complex sounds.

(8+8 = 16 marks)

OR

10. Write short notes on following:

10A. Binaural beats.
10B. Inter aural level differences.
10C. Minimum audible movement angle.
10D. Localization with binaural BTE hearing aids.

(4×4 = 16 marks)

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MANIPAL UNIVERSITY

FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – MAY/JUNE 2013

SUBJECT: SH 104 – SPEECH AND LANGUAGE PROCESSING
(NEW REGULATION)

Tuesday, June 04, 2013

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

1.   Discuss various factors that influence consonant perception.

(16 marks)

OR

2.   Short notes on:
2A. Formant synthesis
2B. Spectral cues for vowel perception

(8+8 = 16 marks)

3.   Write about:
3A. Lexical decision
3B. Word recognition in continuous speech

(8+8 = 16 marks)

OR

4.   Short notes on:
4A. Phoneme triggered lexical decision
4B. Priming

(8+8 = 16 marks)

5A. List different top-down models in spoken word recognition.
5B. Critically evaluate logogen model of spoken word recognition.

(4+12 = 16 marks)

OR

6.   Critically evaluate interactive models of spoken word recognition.

(16 marks)

7.   Discuss the theories of sentence processing.

(16 marks)

OR

8.   Write short notes on:
8A. Discourse comprehension and production
8B. Dual Route Cascade model

(10+6 = 16 marks)

9.   Discuss the various coping strategies to overcome variability in speech signal.

(16 marks)

OR

10. Explain the role of memory and attention in speech perception.

(16 marks)

MANIPAL UNIVERSITY
FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – MAY/JUNE 2013
SUBJECT: SH 107 – AUDITORY PHYSIOLOGY
Thursday, June 06, 2013

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

1A. Discuss the resonance properties of External Ear Canal in hearing.
1B. Describe Anatomical landmarks of Tympanic Membrane.

(12+4 = 16 marks)

OR

2. Explain anatomy of Middle ear cluster.

(16 marks)

3. With literature support, discuss different modes bone conduction in humans.

(16 marks)

OR

4. Write short notes on:
4A. Cochlear non-linearity
4B. Two-tone suppression

(8+8 = 16 marks)

5. Write a note on:
5A. Refractory period
5B. VOR

(4+12 = 16 marks)

OR

6. Explain anatomy and physiology of utricle and sacule with a neat diagrams.

(16 marks)

7. Explain various cells, their location and their response characteristics to different types of stimulus at the level of brainsteam.

(16 marks)

OR

8. Write a note on:
8A. Neurotransmitters in Brainstem.
8B. Role of cochlear nucleus in hearing.

(8+8 = 16 marks)

9A. Frequency and intensity coding in Auditory cortex.
9B. Neat diagram of central auditory pathway.

(8+8 = 16 marks)

OR

10A. Role of auditory cortex in localization.
10B. Tonotopic organization in auditory cortex.

(8+8 = 16 marks)

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MANIPAL UNIVERSITY

FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – MAY/JUNE 2013

SUBJECT: SH 103 – SPEECH SCIENCE AND PRODUCTION
(NEW REGULATION)
Saturday, June 08, 2013

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

1A. Describe the chest wall dynamics during speech and singing.

1B. What are the positional variations influencing speech breathing?

(8+8 = 16 marks)

OR

2A. Describe the pitch changing mechanism in detail. Highlight the role of laryngeal muscles and joints.

2B. Explain "zip like motion" of the vocal fold.

(12+4 = 16 marks)

3. Elaborate on neurophysiological bases of articulatory system.

(16 marks)

OR

4. "Upper airway dynamics and lower airway dynamics differ between voiced and voiceless stops" Comment.

(16 marks)

5A. Mention the various types of models explaining speech production.

5B. Explain the forward and inverse models of speech production.

(4+12 = 16 marks)

OR

6A. What is associative chain model?

6B. Explain the supporting views for associative chain model.

(8+8 = 16 marks)

7. Update on acoustics of vowels and diphthongs.

(16 marks)

OR

8A. Explain the temporal parameters of spectrogram.

8B. Elaborate on application of spectrograms in applied research.

(4+12 = 16 marks)

9A. Differentiate between speaker identification and speaker verification.

9B. Explain the various procedures and methods used in speaker identification.

(6+10 = 16 marks)

OR

10. Explain the purpose, methods and parameters used in the infant cry analysis. Mention the recent developments in infant cry analysis.

(16 marks)

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MANIPAL UNIVERSITY

FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – MAY/JUNE 2013

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

Tuesday, June 11, 2013

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

✍ **Draw neat labeled figures wherever appropriate.**

1A. Briefly outline the different aerodynamic measurements. Justify the need to perform aerodynamic evaluation in voice disorder.

1B. Write a short note on LTAS.

(12+4 = 16 marks)

OR

2A. Discuss the principles and procedure involved in the stroboscopic evaluation of voice.

2B. Describe the mucosal wave in brief.

(12+4 = 16 marks)

3. **Describe the following:**

3A. Warm up exercises

3B. Voice in Male to female transexuals

3C. GERD

3D. Confidential voice therapy.

(4×4 = 16 marks)

OR

4A. Prepare a vocal hygiene program for a primary school teacher.

4B. Describe effects of age on the laryngeal cartilage and vocal fold.

(10+6 = 16 marks)

5A. Describe the various air intake procedures for oesophageal speech.

5B. Describe the speech characteristics of tracheo-oesophageal speech.

(8+8 = 16 marks)

OR

6A. Elaborate on the need for team approach in the assessment and management of laryngeal cancer.

6B. Describe the advantages and disadvantages of artificial larynx.

(10+6 = 16 marks)

7A. Explain stuttering as a disorder of speech motor control.

7B. Discuss the obligatory features of cluttering.

(12+4 = 16 marks)

OR

8A. Stuttering is an auditory processing disorder. Discuss.

8B. Describe the linguistic variability in stuttering.

(10+6 = 16 marks)

9. **Write short notes on:**

9A. Modified airflow technique.

9B. Naturalness rating in stuttering.

9C. Spontaneous recovery.

9D. Research designs used in the management of fluency disorders.

(4×4 = 16 marks)

OR

10A. Describe the various assessment procedures for individual with neurogenic stuttering.

10B. Discuss the causes for relapse in stuttering.

(10+6 = 16 marks)

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MANIPAL UNIVERSITY

FIRST YEAR MASLP (NR)/M.Sc. MLT/M.Sc. MIT/M.Sc. NMT/M.Sc. ECHOCARDIOGRAPHY DEGREE EXAMINATION – DECEMBER 2013

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

Wednesday, December 18, 2013

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

1.   Define Biostatistics and enumerate its applications in Para-medical research.

(5 marks)

2.   What are different methods of drawing a simple random sample? Explain any.

(2+3 = 5 marks)

3.   Define and explain the interrelations among the concepts of sampling distribution, standard error and confidence interval with an example.

(10 marks)

4.   **Distinguish between**

4A.   Parametric and non-parametric tests

4B.   Null and alternate hypothesis

4C.   Two sided and one sided test

4D.   Type I and type II error

4E.   Level of significance and p-value

($2\times5 = 10$ marks)

5.   Prior to the time that germ theory of disease was established, the mortality rate from surgery was very high due to infection. Joseph Lister sprayed the air with carbolic acid and used it in patients dressing. Lister compared 80 operations in which this procedure was used with 70 others where it was not used. The results are given in the following table.

	Patient lived	Patient died	Total
Carbolic acid used	68	12	80
Carbolic acid not used	38	32	70
Total	106	44	150

At 5% level of significance, test whether the outcome of the surgery is independent of the use of carbolic acid or not. ($\chi^2_{1df}(0.05) = 3.84$)

(10 marks)

6. Explain with distinction positive and negative correlation and list the properties of Pearson's correlation coefficient.

(5 marks)

7. Discuss case-control and cohort study designs and enumerate their relative merits and demerits.

(10 marks)

8. A cohort study was conducted to find the effect of oral contraceptive (OC) use on breast cancer. Ten thousand women free from breast cancer were selected for the study and followed up for 10 years. Forty out of 8000 non users of OC and 14 out of 2000 OC users developed breast cancer. Calculate appropriate measure of strength of association and interpret the same.

(5 marks)

9. Explain the situation for the application of logistic regression with the help of a suitable example.

(5 marks)

10. Draw an appropriate dummy table and give the formula for sensitivity, specificity, positive predictive value and negative predictive value.

(5 marks)

11. Explain in detail the format of reporting in scientific journals.

(10 marks)

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MANIPAL UNIVERSITY

FIRST YEAR MASLP (NR)/M.Sc. MLT/M.Sc. MIT/M.Sc. NMT/M.Sc. ECHOCARDIOGRAPHY DEGREE EXAMINATION – DECEMBER 2013

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

Wednesday, December 18, 2013

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4B. Null and alternate hypothesis

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MANIPAL UNIVERSITY
FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – DECEMBER 2013
SUBJECT: SH 106 – PSYCHOPHYSICS
(NEW REGULATION)

Thursday, December 19, 2013

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

1A. Define absolute and relative DL.
1B. Write an essay on factors affecting DLI.

(4+12 = 16 marks)

OR

2A. Adaptive procedures for threshold estimation are more preferable when compared to classical procedures. Critically evaluate the statement.
2B. Explain the measurement of MAP, MAF and MAPC

(6+10 = 16 marks)

3A. Write a research protocol to estimate auditory frequency resolution in human listeners.
3B. Briefly describe the contribution of auditory filtering mechanism to speech perception.

(12+4 = 16 marks)

OR

4. Discuss the effects of stimulus types on masking. Discuss the importance of critical band in masking.

(16 marks)

5A. Explain procedure for gap duration discrimination and gap detection in brief.
5B. Briefly explain the method to estimate TMTF and also the factors affecting TMTF.

(6+10 = 16 marks)

OR

6A. Write on any two methods to study loudness adaptation along with their advantages & limitations.
6B. What is the effect of stimulus duration and frequency on fatigue.

(8+8 = 16 marks)

7A. Give one evidence for each supporting template and temporal theory of pitch perception.
7B. Explain the different mechanisms of missing fundamental perception.

(4+12 = 16 marks)

OR

8. Define timbre. Write an essay on parameters of timbre perception.

(16 marks)

9A. Describe any two models of BMLD.
9B. Describe the role of pinnae in localization.

(8+8 = 16 marks)

OR

10. Write an essay on lateralization of complex sounds.

(16 marks)

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