

MANIPAL UNIVERSITY
FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – MAY/JUNE 2012
SUBJECT: SH 103 – SPEECH SCIENCE AND PRODUCTION

(NEW REGULATION)

Saturday, June 02, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

- 1A. Describe relaxation pressure curve and checking action with a neat diagram.
 1B. Describe BMZ.

(12+4 = 16 marks)

OR

- 1A. Elaborate on the modes of vocal fold vibration.
 1B. Explain one mass model of vocal fold vibration.

(10+6 = 16 marks)

- 2A. What are the effects of vowel height on nasal airway resistance?
 2B. Discuss the physiology of velopharyngeal closure.

(10+6 = 16 marks)

OR

- 2A. Discuss the types of airflow used in the production of vowels, fricatives and nasals.
 2B. Describe the lower and upper airway dynamics in the production of vowels.

(6+10 = 16 marks)

- 3A. Describe the Kozavnikov and Chistovich model of speech production.
 3B. Explain speech motor planning and speech motor programming.

(12+4 = 16 marks)

OR

- 3A. Critically evaluate closed loop model of speech production.
 3B. Describe the disadvantages of Wickelgreen model of speech production.

(10+6 = 16 marks)

- 4A. Discuss the vibratory property of vocal folds and contrast with that of a string.
 4B. Define resonance. Discuss the factors affecting resonance. Calculate the first three resonance frequencies of a tube

- i) Open at both ends
 ii) Closed at one end (L=15cm, C=500m/sec).

(6+10 = 16 marks)

OR

- 4A. Discuss the acoustic cues for fricatives and affricates.
 4B. Describe the acoustic properties of liquids and glides.

(8+8 = 16 marks)

5A. Write notes on 8 acoustic parameters that can be measured in infant cry analysis.

5B. Describe the forensic voice evaluation procedure.

(10+6 = 16 marks)

OR

5A. Discuss the spectrographic patterns of laughter.

5B. Describe the various types of speech synthesis methods.

(4+12 = 16 marks)



MANIPAL UNIVERSITY
FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – MAY/JUNE 2012
SUBJECT: SH 104 – SPEECH AND LANGUAGE PROCESSING
(NEW REGULATION)
 Tuesday, June 05, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ **Answer any one from each of the following questions.**

- 1A. Explain the affect of co articulation on the perception of vowels.
 1B. Explain the perceptual cues of stops and fricatives.

(8+8 = 16 marks)

OR

- 1A. Describe the affects of formant transition and vowel context in the perception of fricatives.
 1B. What are the factors affecting consonant perception?

(10+6 = 16 marks)

- 2A. What are the effects of rhyme monitoring and word monitoring on spoken word recognition?
 2B. What do you mean by token embedded in words and non words?

(12+4 = 16 marks)

OR

- 2A. Explain spoken word recognition under noise and phoneme triggered lexical decision.
 2B. What are the methods to study spoken word recognition using speeded repetition of words and continuous speech.

(8+8 = 16 marks)

- 3A. What are the constraints of temporal structure?
 3B. Explain Neighbourhood Activation Model.

(8+8 = 16 marks)

OR

- 3A. Explain lexical and phonetic processing.
 3B. Explain phonetic categorization and phoneme monitoring task with recent studies.

(10+6 = 16 marks)

- 4A. Explain sentence comprehension with appropriate examples.
 4B. What are the factors affecting visual word recognition?

(10+6 = 16 marks)

OR

- 4A. Explain deep dyslexia from the perceptions of dual route model and connectionist model.
 4B. Explain Intuitive Parsing.

(12+4 = 16 marks)

- 5A. What are the basic capacities for perceiving phonetic contrasts?
 5B. Explain the processing of pragmatic aspect of language.

(10+6 = 16 marks)

OR

- 5A. What are the recent developments in speech perception?
 5B. Describe speech perception in foreign language contrast.

(10+6 = 16 marks)



MANIPAL UNIVERSITY**FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – MAY/JUNE 2012****SUBJECT: SH 105 – VOICE AND FLUENCY DISORDERS****(NEW REGULATION)**

Thursday, June 07, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

- 1A. Describe the formal and informal assessment procedure for an individual with hypernasality.
1B. Write a note on LTAS.

(12+4 = 16 marks)

OR

- 1A. Discuss the principles and procedure involved in the electroglottographic evaluation of voice.
1B. Describe the cepstral measures in detail.

(10+6 = 16 marks)

- 2A. Describe the management of a 47 year old female who complains of inability to raise the pitch.

- 2B. Describe the role of voice therapist in the management of transsexual voice disorders.

(12+4 = 16 marks)

OR

- 2A. Prepare a vocal hygiene program for a radio jockey who reports of vocal abuse.

- 2B. Describe the acoustic characteristics of voice in persons with vocal nodules.

(10+6 = 16 marks)

- 3A. Describe the various air intake procedures for oesophageal speech.

- 3B. Describe the speech characteristics of oesophageal speech.

(8+8 = 16 marks)

OR

- 3A. Elaborate on the need for team approach in the assessment and management of laryngeal cancer.

- 3B. Describe the advantages and disadvantages of artificial larynx.

(10+6 = 16 marks)

- 4A. Describe various methods to study the speech motor control in individuals with stuttering.

- 4B. Describe cluttering as a central language imbalance disorder.

(8+8 = 16 marks)

OR

- 4A. Describe the CNS characteristics of Stuttering with suitable studies.

- 4B. Discuss the speech characteristics of SAAND.

(10+6 = 16 marks).

5. **Write short notes on:**

- 5A. Quality of life measures in stuttering
- 5B. Techniques to reduce rate of speech
- 5C. Negative practice
- 5D. Cognitive therapy in stuttering

(4×4 = 16 marks)

OR

- 5A. Describe the various assessment procedures for an adult with neurogenic stuttering.
- 5B. Describe the various treatment procedures for an adult with neurogenic stuttering.

(8+8 = 16 marks)



MANIPAL UNIVERSITY
FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – MAY/JUNE 2012
SUBJECT: SH 106 – PSYCHOPHYSICS
(NEW REGULATION)

Saturday, June 09, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

☞ **Answer ALL questions.**

- 1A. Describe adaptive psychophysical methods in measuring thresholds.
1B. List in which areas of audiology can these methods be applied.

(12+4 = 16 marks)

OR

- 1A. Differentiate MAP and MAF.
1B. Factors affecting loudness.

(8+8 = 16 marks)

- 2A. Draw a neat diagram of human cochlea representing frequency resolution.
2B. Discuss the frequency resolution of the human cochlea.

(4+12 = 16 marks)

OR

2. Define masking. What are different types of masking? Discuss the importance of critical band in masking.

(16 marks)

- 3A. Define Temporal Perception.
3B. Write an essay on the factors affecting temporal perception.

(2+14 = 16 marks)

OR

- 3A. Discuss different methods to measure temporal resolution.
3B. Describe any one method to study adaptation.

(12+4 = 16 marks)

- 4A. List the theories of pitch perception.
4B. Discuss any two theories proposed for perception of pitch in humans.

(2+14 = 16 marks)

OR

- 4A. What is timber perception?
4B. Write current research findings in object perception.

(4+12 = 16 marks)

5A. Discuss the role of pinna in localization.

5B. Discuss Durlach and Jeffress model.

(8+8 = 16 marks)

OR

5. Discuss:

5A. Minimal audible angle and cone of confusion.

5B. Lateralization and MLD.

(8+8 = 16 marks)



MANIPAL UNIVERSITY
FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – MAY/JUNE 2012
SUBJECT: SH 107 – AUDITORY PHYSIOLOGY

Monday, June 11, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

1A. Write a note on middle ear ossicles.

1B. Discuss the middle ear transformer action.

(6+10 = 16 marks)

OR

1A. Explain in brief the innervations to middle ear.

1B. With a neat diagram describe anatomy of tympanic membrane.

(4+12 = 16 marks)

2A. Explain the composition of cochlear fluids.

2B. Write an essay on repair and regeneration process in cochlea.

(6+10 = 16 marks)

OR

2A. Explain the half wave rectification process of cochlea.

2B. With a neat labeled diagram describe the anatomy of organ of corti.

(4+12 = 16 marks)

3A. Write anatomy of semicircular canals.

3B. With the help of neat diagram explain the anatomy of auditory nerve.

(8+8 = 16 marks)

OR

3A. Describe the generation and characteristics of action potentials.

3B. Describe the coding of complex signal in auditory nerve.

(10+6 = 16 marks)

4A. Discuss the different types of response patterns observed in cochlear nucleus.

4B. Write in brief the tonotopicity of superior olivary complex.

(12+4 = 16 marks)

OR

4A. With a neat diagram describe anatomy and physiology of inferior colliculus.

4B. Write about excitatory neurotransmitters of auditory system.

(10+6 = 16 marks)

5A. Describe the frequency tuning properties of primary auditory cortex and anterior auditory field.

5B. Discuss the coding of complex signal at auditory cortex.

(8+8 = 16 marks)

OR

5A. With a neat diagram, describe anatomy of auditory cortex.

5B. Write a note on plasticity of auditory cortex.

(10+6 = 16 marks)



MANIPAL UNIVERSITY

FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – MAY/JUNE 2012 SUBJECT: SH 101 – STATISTICS & RESEARCH METHODS

Tuesday, May 29, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ **Answer ALL the questions.**

- 1A. Define mean, median, mode, standard deviation and coefficient of variation for 'n' observations.
- 1B. Explain stratified random sampling method. (5+5 = 10 marks)
2. Fifty patients with congestive heart failure were weighed before and after receiving a novel diuretic agent and the average weight loss (the difference between the two weights) for this sample was found to be 3.5 KG with a standard error of 2.6 Kg.
- 2A. Name the statistical test used for testing whether the agent is effective in reducing the weight.
- 2B. State the null and alternate hypothesis.
- 2C. Write the test statistic for this test.
- 2D. Mention the assumptions for the validity of this test.
- 2E. How do you take a decision on the acceptance or rejection of null hypothesis? (2×5 = 10 marks)
- 3A. What do you mean by sampling distribution and standard error? What are the factors that affect the width of a confidence interval for mean?
- 3B. Write a short note on binomial distribution. ((2+3)+5 = 10 marks)
4. What do you mean by randomization in randomised controlled trials (RCTs)? Explain different methods of randomization in RCTs. (1+9 = 10 marks)
- 5A. A hospital administrator wishes to estimate the mean weight of babies born in the hospital. How large a sample of birth records should be taken if the administrator wants a 95% confidence interval with margin error of 1.2 Kg? Assume that a reasonable estimate of the population standard deviation is 5 Kg.
- 5B. Write a short note on cross sectional study design. (5+5 = 10 marks)
6. Explain the structure of a research thesis. (10 marks)
7. **Write short notes on:**
- 7A. Chi square test
- 7B. Survival analysis
- 7C. Validity of a diagnostic test
- 7D. One way ANOVA (5×4 = 20 marks)



MANIPAL UNIVERSITY**FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – MAY/JUNE 2012****SUBJECT: SH 102 – CLINICAL LINGUISTICS****(NEW REGULATION)**

Thursday, May 31, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ Answer any FIVE questions.

1. Discuss how clinical linguistics is useful in the field of speech, language pathology.
(16 marks)
2. How do children acquire language? Answer your question highlighting on different stages of acquisition.
(16 marks)
3. 'Pragmatics is the study of how language is used to communicate within its situational context'. Elaborate on the statement.
(16 marks)
4. Discuss how communication is affected if the right hemisphere of the brain is damaged.
(16 marks)
5. Does your knowledge of sociolinguistics help you in understanding speech, language disorders better? Substantiate your answer by suitable examples.
(16 marks)
- 6A. Write briefly on bilingualism.
6B. What is motherese?
(8+8 = 16 marks)
7. **Write short notes on any FOUR of the following:**
 - 7A. Speech acts
 - 7B. Implicature
 - 7C. Mental lexicon
 - 7D. Deficit hypothesis
 - 7E. Dialect
 - 7F. Formal and informal style
 - 7G. Linguistic determinism
(4×4 = 16 marks)



MANIPAL UNIVERSITY

FIRST YEAR M.A.S.L.P DEGREE EXAMINATION – DECEMBER 2012

SUBJECT: STATISTICS AND RESEARCH METHODS

Monday, December 17, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

☞ Answer ALL the questions.

1. Define the following:

- 1A. P- value
- 1B. Null hypothesis
- 1C. Power
- 1D. Type II error
- 1E. Level of significance

(1×5 = 5 marks)

2A. What do you mean by dispersion? Define various measures of dispersion.

2B. Define a random sample. Describe the method of cluster sampling with its merits and demerits.

(5+5 = 10 marks)

3A. Enumerate the characteristics of normal distribution using a neat diagram.

3B. A local health department wishes to estimate the prevalence of malnutrition among children under five years of age in its locality. How many children should be included in the sample so that the prevalence may be estimated to within 4% points of the true value with 95% confidence, if it is known that the true rate is unlikely to exceed 20%?

(5+5 = 10 marks)

4A. The following table shows the results of a survey conducted among 300 subjects living in a metropolitan city in India. Each subject were asked which of two policies they favoured with respect to smoking in public places.

Level of education	Policy favoured towards smoking		Total
	No restriction	Allowed in designated areas	
Above Plus Two	26	49	75
Plus Two and below	105	120	225

Does this sample provide sufficient evidence to conclude that there is an association between level of education and attitude towards smoking in public places. (Chi-square with 1 df at 5% level of significance=3.84).

4B. A case-control study was conducted to assess whether use of high fat diet plays a role in the development of cancer. A total of 240 histologically confirmed colorectal cancer cases and 480 disease free controls were enrolled in the study. Among them 60% of the cases and 25% of the controls were exposed to high fat diet. Construct a 2×2 table based on this data. Calculate an appropriate measure to identify the strength of association between high fat diet and risk of colorectal cancer. Interpret the findings.

(5+(2+2+1) = 10 marks)

5. Explain randomized controlled trials under the titles design, analysis, merits and demerits.

(10 marks)

6. Outline the format of reporting in scientific journals.

(10 marks)

7. **Write short notes on:**

7A. Analysis of Variance

7B. Logistic regression

7C. Correlation

7D. Mann Whitney U test

7E. Meta-analysis

(5×5 = 25 marks)



MANIPAL UNIVERSITY
FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – DECEMBER 2012
SUBJECT: SH 104 – SPEECH AND LANGUAGE PROCESSING
(NEW REGULATION)
Tuesday, December 18, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

- 1A. Explain the perception of nasal consonants with recent studies.
1B. Distinguish between the perception of oral and nasal consonants. (12+4 = 16 marks)

OR

- 2A. What are the effects of co articulation on stop consonants?
2B. What are the effects of duration and band width on speech perception? (10+6 = 16 marks)

- 3A. How can you study speech perception using filtered and truncated words conditions?
3B. Explain shadowing and word spotting methods. (8+8 = 16 marks)

OR

- 4A. Describe any four methods of studying spoken word recognition.
4B. Explain 'competition' with the perceptives of different models of spoken word recognition. (12+4 = 16 marks)

- 5A. Critically evaluate any one model of spoken word recognition.
5B. Describe phonological encoding and production. (10+6 = 16 marks)

OR

- 6A. Explain lexical concept and lexical access.
6B. Explain COHORT Model of spoken word recognitions. (8+8 = 16 marks)

- 7A. Explain non word naming from the perceptives of dual route cascaded model.
7B. Explain reference and anaphora with suitable examples. (10+6 = 16 marks)

OR

- 8A. Describe discourse comprehension and expression.
8B. Explain connectionist with respect to model of visual word recognition. (10+6 = 16 marks)

- 9A. Describe the role of memory and attention in speech perception.
9B. Explain talker variability and variability in speaking rate. (6+10 = 16 marks)

OR

- 10A. What are the recent developments in speech perception?
10B. Describe the processing of syntactic aspects of language. (10+6 = 16 marks)



MANIPAL UNIVERSITY
FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – DECEMBER 2012
SUBJECT: SH 107 – AUDITORY PHYSIOLOGY
(NEW REGULATION)
Wednesday, December 19, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

- 1A. Describe the anatomy and physiology of Eustachian tube.
1B. Explain the non-auditory functions of external ear. (10+6 = 16 marks)

OR

- 2A. Write a note on lever action of middle ear ossicles.
2B. Briefly explain head related ear canal transfer function and discuss their implications. (6+10 = 16 marks)

- 3A. What are the current evidences on hair cell repair and regeneration in cochlea.
3B. Write a note on blood supply to cochlea. (10+6 = 16 marks)

OR

- 4A. Write on combination tones.
4B. With a neat diagram, describe anatomy of cochlea. (4+12 = 16 marks)

- 5A. Describe the function of semicircular canals in brief.
5B. With the help of neat labeled diagram explain the anatomy of internal auditory meatus. (8+8 = 16 marks)

OR

- 6A. Write a note on vestibulo-ocular reflex.
6B. Discuss coding of speech in auditory nerve. (8+8 = 16 marks)

- 7A. Compare and contrast the structure and function of VCN and DCN.
7B. Briefly describe the anatomy and physiology of MGB. (8+8 = 16 marks)

OR

- 8A. Describe different types of cells responsible for sound localization.
8B. Discuss the tonotopic organization of cochlear nucleus and superior olivary complex. (8+8 = 16 marks)

- 9A. Write on neurotransmitters in the auditory cortex.
9B. Describe the coding of frequency and intensity at the auditory cortex. (4+12 = 16 marks)

OR

- 10A. Describe the role of auditory cortex in localization.
10B. Briefly explain the sub divisions and connections of auditory belt areas. (4+12 = 16 marks)



Reg. No.									
----------	--	--	--	--	--	--	--	--	--

MANIPAL UNIVERSITY

FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – DECEMBER 2012

SUBJECT: SH 102 – CLINICAL LINGUISTICS

(NEW REGULATION)

Thursday, December 20, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ **Answer any FIVE questions.**

1A. Distinguish between pidgin and creole.

1B. What do you mean by stylistic variation of language?

(8+8 = 16 marks)

2. What is clinical linguistics? Discuss its scope.

(16 marks)

3. What is discourse? Discuss the deviancies noticed in the discourse patterns of people with Stylistic variations.

(16 marks)

4. Describe the process of changes from pre-pidgins to post-creole.

(16 marks)

5. Describe language acquisition in bilingual and multilingual environments.

(16 marks)

6. What is the difference between semantics and pragmatics? What do you study in pragmatics?

(16 marks)

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

7A. Non-Verbal Communication.

7B. Language And Culture.

7C. Definiteness.

7D. Motherese.

7E. Sapir-Whorf Hypothesis.

7F. Global Aphasia.

7G. Pidgin

(4×4 = 16 marks)



MANIPAL UNIVERSITY

FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – DECEMBER 2012

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

Friday, December 21, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

- 1A. Describe the recent advancements in the acoustic evaluation of voice disorders.
1B. Describe GRBAS voice rating scale.

(12+4 = 16 marks)

OR

2. **Describe the following:**

- 2A. EGG
2B. VR-QOL
2C. Videokymography
2D. TONAR

(4×4 = 16 marks)

- 3A. Describe the voice characteristics of Male to Female and Female to Male transsexuals.
3B. Describe the vocal changes associated with adductor vocal fold palsy.

(8+8 = 16 marks)

OR

- 4A. Elaborate on the pathophysiology of vocal nodules and polyps.
4B. Discuss the acoustic and perceptual characteristics of vocal nodules and polyps.

(6+10 = 16 marks)

- 5A. Describe the acoustic and perceptual characteristics of voice in alaryngeal speakers.
5B. Write a note on gastric speech.

(12+4 = 16 marks)

OR

6. **Describe the following:**

- 6A. Blom Singer prosthesis
6B. Morphology of PE segment
6C. Oesophageal insufflation test
6D. Impairment, disability and handicap with respect to Laryngectomy

(4×4 = 16 marks)

7A. Critically evaluate stuttering as a genetic disorder.

7B. Stuttering is a prosodic disorder- Discuss.

(8+8 = 16 marks)

OR

8A. Explain the linguistic basis of fluency disorders. Support your answers with suitable studies.

8B. Describe Normal nonfluency.

(12+4 = 16 marks)

9A. Describe the management options for an adult with cluttering.

9B. Describe the rationale behind prolongation technique.

(12+4 = 16 marks)

OR

10A. Describe the formal and informal assessment procedures for a child with stuttering.

10B. Write a short note on spontaneous recovery in fluency disorders.

(12+4 = 16 marks)



MANIPAL UNIVERSITY
FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – DECEMBER 2012
SUBJECT: SH 106 – PSYCHOPHYSICS
(NEW REGULATION)

Saturday, December 22, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

- 1A. List the theories of hearing.
 1B. Critically evaluate the theories of Loudness.
- (2+14 = 16 marks)

OR

- 2A. Explain application of ROC in Audiology.
 2B. MAP & MAF
- (8+8 = 16 marks)

- 3A. Auditory filter.
 3B. What is ERB? What factors that affect in measuring ERB?
- (8+8 = 16 marks)

OR

4. Write a research protocol to measure tuning curve of human cochlea.
- (16 marks)

- 5A. Define temporal integration.
 5B. Discuss various methods adapted in measuring the gap detection in humans.
- (2+14 = 16 marks)

OR

- 6A. Differentiate Adaptation and fatigue.
 6B. Factors affecting adaptation.
- (8+8 = 16 marks)

- 7A. Critically evaluate any two theories proposed for pitch perception.
 7B. Discuss pitch perception in clinical population.
- (10+6 = 16 marks)

OR

- 8A. Define Ohm's law and write about its' application in hearing.
 8B. What is Object perception? Briefly discuss the recent findings in hearing impaired population.
- (8+8 = 16 marks)

- 9A. MAA, CMAA, rotating beats.
 9B. Factors contributing for localization.
- (8+8 = 16 marks)

OR

- 10A. MLD principle, procedure and clinical application.
 10B. Discuss the factors affecting localization.
- (8+8 = 16 marks)



MANIPAL UNIVERSITY
FIRST YEAR M.A.S.L.P. DEGREE EXAMINATION – DECEMBER 2012
SUBJECT: SH 103 – SPEECH SCIENCE AND PRODUCTION
(NEW REGULATION)

Monday, December 24, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

- 1A. Describe the types of forces of respiration. Explain the physiological aspects of these forces with respect to speech, quiet breathing and muscles involved.
1B. Briefly explain any two types of measures of respiratory analysis.

(12+4 = 16 marks)

OR

2. Explain how the multiple mass model differs from other models of vocal fold vibration. Highlight on its significance in understanding the physiology of phonation.

(10+6 = 16 marks)

3. Explain in detail the upper airway dynamics in speech production.

(16 marks)

OR

4. Explain the articulatory-aerodynamic relations of stops and fricatives.

(16 marks)

- 5A. What are open loop models of speech production?

- 5B. Explain various issues discussed in closed loop models of speech production.

(4+12 = 16 marks)

OR

6. Describe in detail the preprogramming model of speech production.

(16 marks)

- 7A. State the highlights of perturbation theory.

- 7B. Discuss perturbation theory of speech production in terms of understanding of formants.

(4+12 = 16 marks)

OR

8. Explain various spectrographic parameters of speech sounds with the help of diagrams.

(16 marks)

- 9A. What are the applications of speech synthesis?

- 9B. Explain the various methods of speech synthesis with their merits and demerits.

(4+12 = 16 marks)

OR

- 10A. Describe the need for laughter analysis.

- 10B. What are the spectrographic patterns of laughter?

(6+10 = 16 marks)

