International Institute of Information Technology, Hyderabad (Deemed to be University)
Subject: Speech Technology (CSE971) (Fall-2019)
Quiz 1

Maximum Time: 45 Minutes Time: 8:00 AM – 8:45 AM Max. Points: 40

Roll No.: 20171099 Programme: CLD Date of Exam.: 31-08-2019

Room No.: 205 Seat No. A4 Invigilators Signature: .....

Answer	1	2	3	4	5	6	7	8	9	10	Total
Maximum Points	4	4	4	4	4	4	4	4	4	4	40
Points Obtained	1	4	2½	0	3	2¾	2	2	3	4	25½

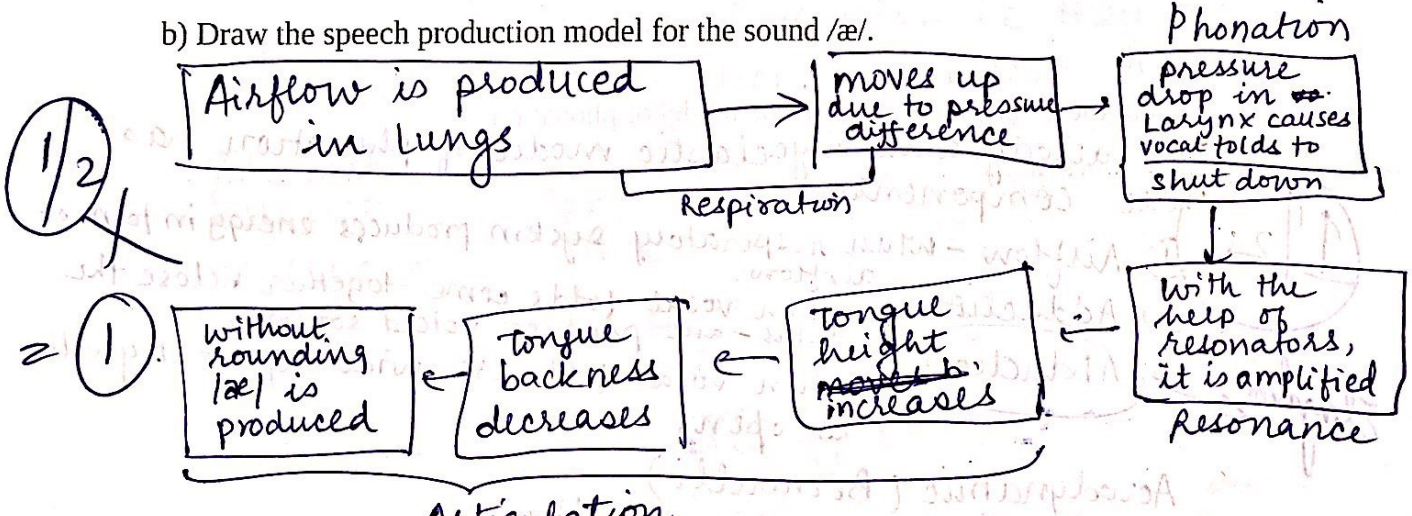
Note: Answer all the 10 questions. Answer for each question carries 4 points. Answers to each of the questions has to be written only in the appropriate places

Questions

1.a) Define Speech? When is speech produced?

Speech is concatenation of phones according to the rules of a language. Speech is produced when the vocal folds vibrate – due to repeated opening (abductn) & closing (adduction)

b) Draw the speech production model for the sound /æ/.



2. Write true or false for the following:

a) The opening time of vocal folds is greater than the closing time. True

b) Lateral cricoarytenoid muscle abducts the vocal folds. False

4

c) Implosives are the sounds created using glottalic egressive airstream. False

d) Jaw is an articulator True

3.a) Write the differences between phonation and articulation.

Phonation	Articulation
① Process by which sound is produced	① Process by which sound is modified into different phonemes using different articulators
② Carried out by vocal folds inside larynx	② Carried out by the 10 different articulators in the vocal cavity.

1

b) Explain the aerodynamic-myoelastic model of phonation

The aerodynamic-myoelastic model of phonation has three components –

1½

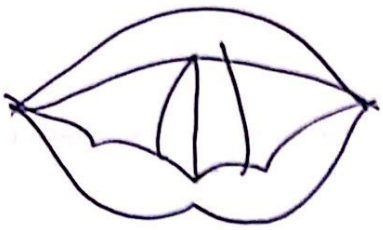
① Airflow – when respiratory system produces energy in form of airflow.

② Adduction – when vocal folds come together & close the glottis – and produce voiced sounds.

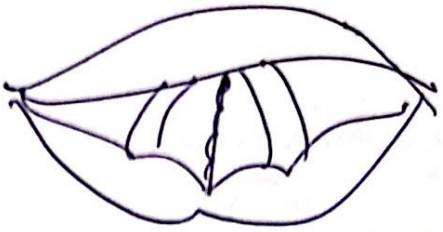
③ Abduction – when vocal folds are wide apart & glottis is open.

Elongation

Aerodynamic (Bernoulli)
Myoelastic (Muscular activity)



closed glottis (adduct^{n})



open glottis (abduction)

4. Mary hums a sound with the help of phonation of vocal folds. But the sound hummed has very little amplitude and frequency. When she finally wants the output with an increase in both frequency and amplitude, then what shall she do?
Name that process, define it and also list all the elements involved in the process.

X

5.a) What are approximants? Why are they named so? List all the approximants along with their manners and also their POA.

Approximants are semi-vowels — i.e. they neither have complete obstruction of airflow nor no obstruction at all. They are named so because they approximate the amount of obstruction (neither complete nor zero).

Glides — /w/ - Bilabial ~~Velar~~ (Palatal)
/j/ - Latual approximant (Velar)

Liquids — /l/ - lateral approximant (Alveolar)
/r/ - Retroflex (Palatal)

labiovelar
palatal
palatal
Alveolar

b) Explain any two effects of coarticulation with examples.

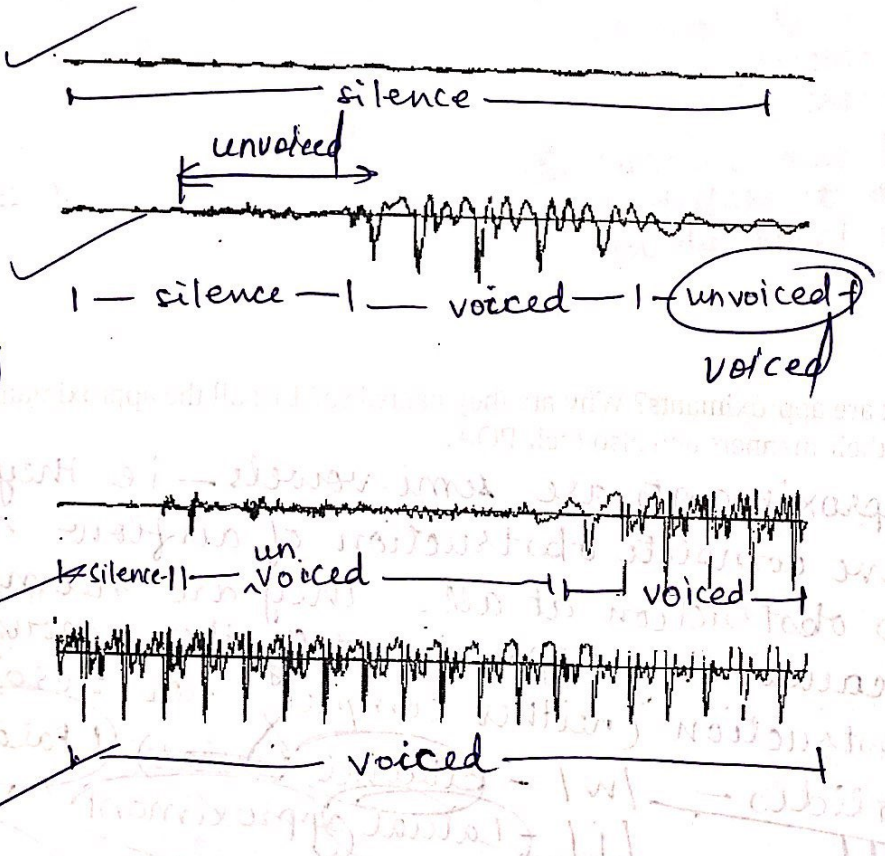
Assimilation : when the neighbouring phonemes are affected by a phoneme. i.e. Voiced phonemes can affect ~~unvoiced~~ neighbouring unvoiced and vice-versa.
eg. 'ks' in talks

1 1/2

Allophones : when the same phoneme has different pronunciation.
Allophonic variation eg. /t/ in batter and in top

~~Instead we t in tape be tip~~

6.a) Mark the silence, voiced and unvoiced regions in the below speech waveforms.



1 1/2 1/2

b) Draw the stricture for vowel sounds. There is no stricture for vowel sounds

(1+1)

7.i) Write the phonetic transcription for (can refer to the vowel chart attached at the end)

a) sixth

/sɪkst/ /sɪksθ/

b) synecdoche

/sɑɛnɛkdoʃ/ /sɪnekdəkɪ/

c) penguin

/pɛŋgwɪn/ /peŋgwɪn/

d) pneumonia

/nɪmonɪə/ /nyumoəʊnɪə/

(2 1/4)

8. Write the source and system characteristics for the word 'active'.

/æktɪv/

SOURCE

/æ/ – voiced (close glottis) (vocal folds vibrating)

/k/ – velar release of velar consonant

/t/ – unvoiced ✗

/ɪ/ – voiced (close glottis)

/v/ – labiodental unvoiced

(1 1/2)

system

/æ/ – voiced front open (unrounded)

/k/ – velar stop (unvoiced)

/t/ – alveolar stop (unvoiced)

/ɪ/ – voiced unrounded front close

/v/ – labiodental unvoiced

1/2 + 2 = 2

9.i) Tick the aspirated sounds from the below underlined words.

a) potato
b) band
c) tomorrow
d) gum
e) kettle

ii) Tick the right answer that is NOT a part of the supralayrngeal system from the following?

a) trachea
b) mandible
c) velum
d) hard palate

iii) Tick the right answer that is not one of the stages of the speech production process?

a) Conceptualization
b) articulation
c) Pragmatic parsing
d) formulation

iv) Tick the word that has a diphthong in it.

a) cost
b) cast
c) cow
d) cash

v) Which one of the following has a different consonant in terms of MOA at word initial position (tick the right answer)

a) wheat
b) why
c) whether
d) whale
e) whole

vi) Which one of the following words has a voiceless sound in word-final position? (tick the right answer)

a) dough
b) sour
c) doors
d) bags
e) talks

10. Write the orthographic form for the following phonetic representations:

a) teɪk ə məʊmənt ænd əpriʃieɪt ðə pipəl hu nɛvə gɪv ʌp ɒn ju

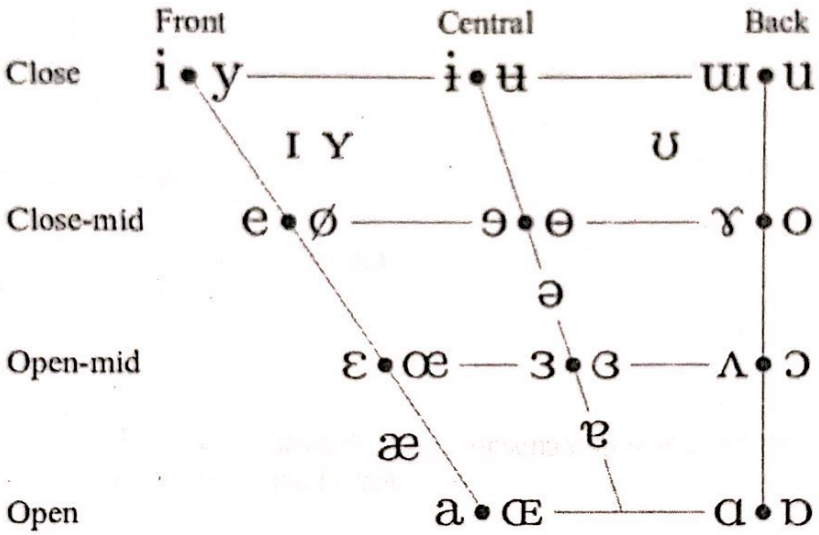
Take a moment and appreciate the people who never give up on you.

4

b) si ʃelz ɒn ðə si ʃɔ

Sea shells on the sea Shore

VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel.