
Phonetics and Phonology

Q. Define Linguistic.

Linguistics is the scientific study of language. It involves analysing language form, language meaning, and language in context. Linguists traditionally analyse human language by observing interplay between sound and meaning. In a very simple sense, 'linguistics' is the study of language.

Q. What are the aim and objective of the course Eng507?

Aim and objective of course are:

- understand how human sound is produced;
- know the physical properties of human sounds;
- study the suprasegmental features and features of the connected speech;
- have a greater awareness of IPA symbols and transcribe any kind of English text;
- prepare themselves for more advanced level course in Experimental Phonology for their detailed future research work;
- learn about the modern software used in phonological research.

Q. Differentiate vowel and consonant.

Human sounds are divided into two broad categories: consonants and vowels. A consonant is a speech sound in which air is at least partly blocked whereas vowel is a sound in which there is no obstruction found and the air passes through the cavity freely.

Q. How we classify consonant?

A consonant is classified in terms of the places of articulation, manners of articulation and voicing.

Q. How we classify vowel?

Vowel is classified in terms of the position of tongue, the part of tongue and lip-rounding.

Q. Write down short vowel with examples

Short vowels

ɪ	pit
e	pet
æ	pat
ʌ	putt
ɒ	pot
ʊ	put
ə	another

Q. Write down long vowel with examples

i:	bean
ɑ:	barn
ɔ:	born
u:	boon

ɜ: burn

Q. Write down Plosive sounds

P, b, t, d, k, g

Q. Write down fricative sounds

f, v, θ, ð, s, z, ʃ, ʒ, h

Q. Write down affricate with examples.

tʃ chain

dʒ Jane

Q. What are the approximants in English.

l light

r right

w wet

j yet

Q. Differentiate phonetics and phonology.

Phonology is the study of the sounds of a particular language (e.g., English). In phonology, it matters whether sounds are contrastive or not, that is, whether substituting one sound for another gives a different, or "**contrastive**," meaning. Phonetics, as a discipline, is the study of human speech sounds. It includes the understanding of how sounds are articulated using mouth, nose, teeth and tongue, and how ears hear those sounds and can tell them apart. There are three major types of phonetics: articulatory phonetics, acoustics phonetics and auditory There phonetics

Q. Define phoneme with suitable example.

A phoneme is the smallest meaningful unit of sound (therefore, a smallest unit in phonology) in a language and this meaningful unit of sound is one that will change one word into another word. For example, the difference in both 'white' and 'right' (ignore spellings here, focus on sounds) is the difference of sounds (w – r) which are phonemes and they have the ability to change meaning

Q. Define allophone?

An allophone is a definable systematic variant of a phoneme. Compare the following sets:

1. 's' sound in words like sill, still and spill or in words like seed, steed and speed
2. 'k' sound in words like, key and car
3. 't' sound in words like true and tea
4. 'n' sound in words like tenth and ten
5. Phone is a sound pattern having some acoustic features.

Q. Define Articulatory phonetics.

Articulatory phonetics deals with studying the making of single sounds by the vocal tract. It is the branch of phonetics which studies the way in which speech sounds are made ('articulated') by the vocal organs

Q. Define Acoustic phonetics.

Acoustic phonetics is related to the study of physical attributes of sounds produced by the vocal tract. It is the branch of phonetics which studies the physical properties of speech sound as transmitted between mouth and ear according to the principles of acoustics (the branch of physics devoted to the study of sound).

Q. Define Auditory phonetics.

Auditory phonetics deals with understanding how human ear perceives sound and how the brain recognizes different speech units. This branch of phonetics studies the perceptual response to speech sounds as mediated by ear, auditory nerve and brain..

Q. Define Experimental phonetics.

Experimental phonetics is the branch of general phonetics that deals with the study of the sounds and other human speech units by applying the experimental method. This scientific field covers basic areas of phonetics - articulatory phonetics, acoustic phonetics and auditory phonetics. Moreover, experimental method used in study of the segmental phonetics and suprasegmental phonetics, in exploration of the typological phonetics. Experimental phonetics is used to test theories or hypotheses in order to support or disprove them.

Q. What are the areas of experimental phonetics explored by Peter Ladefoged in 1967:

Following three areas were explored by Peter Ladefoged

- Stress in respiratory activity
- The nature of vowel quality
- Perception and production of speech

Q. Define Generative Phonology.

Generative phonology is a component of generative grammar that assigns the correct phonetic representations to utterances in such a way as to reflect a native speaker's internalized grammar.

Q. Write down theories stemmed (branches) down by Generative Phonology.

Following are the theories that have stemmed from 'generative phonology':

1. Autosegmental phonology
2. Metrical phonology
3. Lexical phonology
4. Optimality theory

Q. What is speech production?

The process of speech production mainly includes respiration, phonation, articulation and resonance. This simply means that in order to produce speech, we need the air stream mechanism, the exploitation of the air stream at larynx, the modification of the air passage with the help of articulators at the cavity, and finally the transfer of energy.

Q. Define sound wave

A sound wave is the pattern of disturbance caused by the movement of energy traveling through air (sound always travels in the shape of waves in the air). Sound basically consists of small variations in air pressure that occur very rapidly one after another. These variations are caused by actions of the speaker's vocal organs that are (for the most part) superimposed on the outgoing flow of lung air.

Q. What is Bilabial sound?

This sound is made with two lips (for example, /p/ and /b/). The lips come together for these sounds.

Q. What is Labiodental sound?

This sound is made when the lower lip is raised to touch the upper front teeth (for example, /f/ and /v/).

Q. What is Dental sound?

This sound is made with the tongue tip or blade and upper front teeth. For example, say the words *thigh*, *thy* and you will find the first sound in each of these words to be dental.

Q. What is Alveolar sound?

This sound is made with the tongue tip or blade and the alveolar ridge. You may pronounce words such as *tie*, *die*, *nigh*, *sigh*, *zeal*, *lie* using the tip of the tongue or the blade of the tongue for the first sound in each of these words (which are alveolar sounds).

Q. What is Retroflex sound?

This sound is produced when the tongue tip curls against the back of the alveolar ridge. Many speakers of English do not use retroflex sounds at all but it is a common sound in Pakistani languages such as Urdu, Sindhi, Pashto, Balochi and Punjabi.

Q. What is Palato-alveolar sound?

This sound is produced with the tongue blade and the back of the alveolar ridge (for example, first sound in each of words like *shy*, *she*, *show*)

Q. What is Palatal sound?

This sound is produced with front of the tongue and the hard palate (such as the first sound in 'yes').

Q. What is Velar sound?

This sound is produced with back of the tongue and the soft palate (such as /k/ and /g/).

Q. Define manner of articulation.

In order to classify a speech sound, one of the most important things that we need to know is what sort of obstruction it makes to the flow of air: a vowel makes very little obstruction, while a plosive consonant makes complete obstruction. The type of obstruction is known as the manner of articulation.

Q. Categorize Consonantal sounds.

Consonantal sounds are divided, in terms of their manner of articulation, into two major types:

- i. Obstruents (such as stops, fricatives and affricates)
- ii. Sonorants (such as nasals, liquids and glides).

Q. Give detailed description of manners of articulation'

These are the different manners of articulation:

- **Plosives/stops:** In plosives, the speech organs are closed and the oral and nasal cavity completely closed blocking off the airstream. The upbuilding pressure in the oral cavity is then suddenly released. The audible puff of air that is released is called *aspiration*. Plosives of the English language are /p/, /t/, /k/ (voiceless) and /b/, /d/, /g/ (voiced).
- **Affricates:** Like with plosives there is a complete blockage of the airstream in the oral cavity. But in contrast to said plosives, the blocked-off airstream is not released suddenly, but rather slowly causing audible friction. Affricates can, therefore, be divided into two parts: a plosive followed by a fricative (as there is closure and friction in the same place). But note that affricates are always analyzed as only one phoneme. English affricates are /tʃ/ (voiceless) as in *cheese* and /dʒ/ (voiced) as in *jungle*.
- **Nasals:** In nasal sounds the velum (soft palate) is lowered blocking off the oral cavity. Air can only escape through the nose. English nasals are /m/, /n/ and /ŋ/ as in *sing*, which are all voiced.
- **Fricatives:** Fricatives are created when air forces its way through a narrow gap between two articulators at a steady pace. They can be divided into two categories: slit fricatives and groove fricatives. In slit fricatives the tongue is rather flat (as in /f/, /θ/ as in *thing*(voiceless), /v/, /ð/ as in *this* (voiced)) while in groove fricatives the front of the tongue forms the eponymous groove (/s/ as in *seal*, /ʃ/ as in *shock* (voiceless), /z/ as in *zero*, /ʒ/ as in *measure* (voiced)).
- **Laterals:** The tip of the tongue is pressed onto the alveolar ridge. The rims of the tongue are lowered so that the air escapes over the lowered tongue rims. The only English lateral sound is /l/ (voiced).
- **Approximants:** The name approximants refers to the fact that the articulators involved approach each another without actually touching. There are three approximants in the English language: /j/ as in *you*, /w/ as in *we* and /r/ as in *rise* (all voiced). Approximants are often referred to as *semi-vowels* (or *glides*) as they represent the “twilight zone” between consonants and vowels.

Q. What is Tap?

Tap is up and down movement of the top of the tip of tongue. For example, pronouncing the middle sound in word ‘pity’ with typical American accent [ɾ]. It is very brief and is produced by a sharp upward throw of the tongue blade. In this sound, tongue makes a single tap against the alveolar ridge.

Q. What is Flap?

Flap is front and back movement of tongue tip at the underside of tongue with curling behind. It is found in abundance in Indo-Aryan (IA) languages [ɾ]. Typical flap sounds found in IA languages is a retroflex sound and the examples are [ɽ], [ɖ] and [ɽ].

Q. what is Trill? (sometimes calledroll),

In the production of trill the articulator is set in motion by the current of air [r]. It is a typical sound of Scottish English as in words like ‘rye’ and ‘row’.

Q. Define relation of F1 and F2 in vowel sound?

Acoustically, vowels are mainly distinguished by the first two formant frequencies F1 and F2; F1 is inversely related to the vowel height (which means that smaller F1 amplitude = higher vowels), and F2 is related to the front or back of the vowels (smaller F2 amplitude = more back vowels).

Q. What is suprasegmental phonology?

‘Supra’ means above (beyond) and ‘segments’ means sounds (such as vowels and consonants) so the term ‘suprasegmental’ means ‘above sounds’. The term suprasegmental was initially invented to refer to aspects of sound such as intonation that did not seem to be the properties of individual segments (i.e. the vowels and consonants of which speech is composed).. There has never been full agreement about how many suprasegmental features are to be found in speech, but pitch, loudness, tempo, juncture, syllable, rhythm and stress are the most commonly mentioned ones.

Q. What is phonetic transcription?

Transcription is an important tool in phonetics and phonology. Based on a specific set of symbols, transcription is the writing down of a spoken utterance. In its original meaning, the implied word is converted from one representation (e.g. written text) into another (e.g. phonetic symbols). Phonetic transcription (also known as phonetic script or phonetic notation) is the visual representation of speech sounds (or phones). The most common type of phonetic transcription uses a phonetic alphabet, such as the International Phonetic Alphabet.

Q. Define different types of transcription.

Two main kinds of transcription are recognized: broad (phonemic) and narrow (phonetic). Conventionally, square brackets enclose phonetic transcription [k]; oblique lines enclose phonemic transcription /k/. In broad transcription, sounds are symbolized just on the basis of their linguistic functions (in a language) and without going into the detail of the physical features of an individual sound. Phonemic transcription looks the simplest of all.

Q. what is The North Wind and the Sun’ story?

The IPA provides various tools for the phonetic study of human languages. One of such resources is ‘The North Wind and the Sun’ story. In order to create a uniform system for the description of the sounds of languages, this is a recommended text for transcription (both narrow and broad), especially for publishing the IPA illustrations of languages in the IPA journal.

Q. Explain The North Wind and the Sun’ story in detail.

The north wind and the sun were disputing which was the stronger when a traveler came along wrapped in a warm cloak. They agreed that the one who first succeeded in making the traveler take his cloak off should be considered stronger than the other. Then the north wind blew as hard as he could, but the more he blew the more closely did the traveler fold his cloak around him and at last the north wind gave up the attempt. Then the sun shined out warmly, and immediately the traveler took off his cloak. And so the north wind was obliged to confess that the sun was the stronger of the two.

Q. Give broad transcription of The North Wind and the Sun’ story

ðə 'nɔ:θ ,wind ən (ð)ə 'sʌn wə dɪs'pjʊtɪŋ 'wɪtʃ wəz ðə 'strɪŋgə, wən ə 'tɪævlə ,kem ə'laɪ 'ræpt
ɪn ə 'wɔ:ɪm 'klok.

ðe ə'grɪd ðæt ðə 'wʌn hu 'fəst sək'sɪdəd ɪn 'mekɪŋ ðə 'tɪævlə 'tek ɪz 'klok ,af ʃʊd bi kən'sɪdəd 'strɪŋgə
ðən ði 'əðə.

ðen ðə 'nɔ:θ ,wind 'blu əz 'haɪd əz i 'kʊd, bət ðə 'mɔ: hi 'blu ðə 'mɔ: 'klosli dɪd ðə 'tɪævlə 'fold hɪz
'klok ə'raʊnd ɪm;

,æn ət 'læst ðə 'nɔ:θ ,wind ,gev 'ʌp ði ə'tempt. 'ðen ðə 'sʌn 'ʃaɪnd ,aʊt 'wɔ:ɪmli ənd ɪ'mɪdiətli ðə 'tɪævlə
'tʊk ,af ɪz 'klok.

ən 'so ðə 'nɔ:θ ,wind wəz ə'blaɪz tɪ kən'fes ðæt ðə 'sʌn wəz ðə 'strɪŋgə əv ðə 'tu.

Q. Give narrow transcription of The North Wind and the Sun' story

ðə 'nɔ:θ ,wind ən ə 'sʌn wə dɪs'pjʊtɪŋ 'wɪtʃ wəz ðə 'strɪŋgə, wən ə 'tɪævlə ,kem ə'laɪ 'ræpt ɪn
ə 'wɔ:ɪm 'klok.

ðe ə'grɪd ðæt ðə 'wʌn hu 'fəst sək'sɪdəd ɪn 'mekɪŋ ðə 'tɪævlə 'tek ɪz 'klok ,af ʃʊd bi kən'sɪdəd 'strɪŋgə
ðən ði 'əðə.

ðen ðə 'nɔ:θ ,wind 'blu əz 'haɪd əz hi 'kʊd, bət ðə 'mɔ: hi 'blu ðə 'mɔ: 'klosli dɪd ðə 'tɪævlə 'fold hɪz
'klok ə'raʊnd hi;

,æn ət 'læst ðə 'nɔ:θ ,wind ,gev 'ʌp ði ə'tempt. 'ðen ðə 'sʌn 'ʃaɪnd ,aʊt 'wɔ:ɪmli ənd ɪ'mɪdiətli ðə 'tɪævlə
'tʊk ,af ɪz klok.

ən 'so ðə 'nɔ:θ ,wind wəz ə'blaɪz tɪ kən'fes ðæt ðə 'sʌn wəz ðə 'strɪŋgə əv ðə 'tu.

Q. Describe The features of connected speech.

The features of connected speech are: assimilation, rhythm, stress, elision, linking, tone and intonation.

Q. what is Stress?

In phonetics, stress refers to the degree of force used in producing a syllable. The usual distinction is between stressed and unstressed syllables, the former being more prominent than the latter (and marked in transcription with a raised vertical line, [']).

Q. Define different kind of stress.

Primary stress: the loudest syllable in the word. In one-syllable words, that one syllable has the primary stress (except for a handful of short function words like *the*, which might not have any stress at all). Primary stress is marked in IPA by putting a raised vertical line ['] at the beginning of the syllable.

Secondary stress: syllables which aren't completely unstressed, but aren't as loud as the primary stress. Secondary stress is marked with a lowered vertical line [,] at the beginning of the syllable.

Unstressed syllables: syllables that have no stress at all. In English, almost all of these have schwa [ə] for their vowel, though [ɪ] will also often be unstressed, like the [ɪ] in *happy* ['hæpi]. (Very rarely, another non-schwa vowel might be unstressed, like the [o] of *potato* [pə'teto] for most speakers.)

Q. Define how to mark primary and secondary stress.

Primary stress: symbol ['] above the line and before the stressed syllable such as /'snɪp.ɪt/
/ɪg'zɪst/ /prən'ʌnsɪ'eɪʃən/

Secondary stress: symbol [,] below the line before the stressed syllable /,mɪnɪmə'zeɪʃən/

Q. What is connected speech?

Connected speech is spoken language that's used in a continuous sequence, as in normal conversations. It is also called *connected discourse*. There is often a significant difference between the way words are pronounced in isolation and the way they are pronounced in the context of connected speech. For example, words or syllables can be clipped or run together, or their stresses can change.

Q. Write a note on Stop.

'Stop' is often used as if synonymous with plosive. However, some phoneticians use it to refer to the class of sounds in which there is complete closure specifically in the oral cavity. In this case, sounds such as m, n are also stops. More precisely, they are nasal stops. In English, there are nine stops (six oral and three nasal):

	bilabial	alveolar	velar	
- Voiced		p	t	k
+Voiced	b	d	g	
(nasal) +Voiced	m	n	ŋ	

Apart from the above stops, in some varieties of English, the glottal stop /ʔ/ is found as in *beaten* ['biʔn]. English voiceless stops (p, t, k) are also aspirated in the beginning of the words such as [p^haɪ, t^haɪ, k^haɪ].

Q. Write a note on Fricatives.

It refers to a sound made with two articulators coming so close to each other that the air moving between them produces audible friction (or frication). Remember that there is no complete closure between the articulators and there is a very simple stricture (or narrowing of the air passage). In BBC English, we have several fricatives (both voiced and voiceless), as in *fin* [f], *van* [v], *thin* [θ], *this* [ð], *sin* [s], *zoo* [z], *ship* [ʃ], *measure* [ʒ], *hoop* [h]. Other fricatives may be heard in some forms of English (or in restricted contexts or speech styles, such as the palatal fricative [ç]), and several other fricatives may also be heard in other languages, e.g., a voiceless velar fricative [x] in Urdu, Pashto and Sindhi, a voiceless pharyngeal fricative [ħ] in Arabic, a voiced bilabial fricative [β] in Spanish. The fricative manner of articulation produces a wider range of speech sounds than any other.

Very common fricative sounds are /f, v, s, z, θ, ʃ, ð, h/ whereas [ʒ] is a less common fricative sound. English fricatives are also divided into two categories (this distinction is made on the basis of energy made in their production); fortis: /f, s, θ, ʃ, h/ and lenis: /v, z, ð, ʒ/. Stops and fricatives are together called 'obstruents' and they are similar in three ways: (1) they influence vowel length (vowels are shorter before voiceless obstruents), (2) voiceless obstruents at final position are longer than their voiced counterparts (e.g., *race* vs. *rays*), and (3) obstruents are voiced only if the adjacent segments are also voiced (e.g., *dogs*).

Q. Write a note on Affricates.

An affricate sound is a type of consonant which is made of a plosive followed by a fricative with the same place of articulation (so, it is a mixture of two steps or gestures). For example, /tʃ/ (the voiceless affricate) has /t/ and /ʃ/ as a sound at the beginning and end of the English words *church* /tʃɜ:tʃ/.

Remember that although it is very strange to call the combination of a plosive and a fricative a single sound (an affricate) (as it has been deliberated for quite some time) yet experts argue that an affricate is a single segment and accordingly it should be treated as a single unit. There are two affricates in English: /tʃ/ and /dʒ/ (the first of these is voiceless, the second voiced) sounds as at the beginning and end of the English words *church* and *judge*. Both of them are post alveolar sounds by their place of articulation.

Q. Write a note on Nasals.

Nasals are the consonantal sounds in which the air escapes through the nose (the soft palate i.e., velum is lowered). For nasal sounds, two articulatory actions are necessary; (1) the soft palate (or velum) must be lowered to allow air to escape through nose, and (2) a closure must be made in the oral tract (in order to prevent air from escaping through it). This closure may be created at any place in the oral cavity (such as at lips position, for bilabial /m/ sound; at alveolar, for /n/ or at soft palate (velum) for /ŋ/ sound. English has these three nasal sounds (m, n and ŋ) which are very commonly found. All of them are nasal stops and they are voiced sounds.

Q. Write a note on Approximants.

The consonants which make very little obstruction to the airflow are called approximants. These have traditionally been divided into two main groups: *semivowels* (such as /w/ in ‘wet’ and /j/ in ‘yet’) which are very similar to close vowels ([u] and [i]) but are produced as a rapid glide; and *liquid* sounds which have an identifiable constriction of the airflow (but they do not obstruct sufficiently to produce fricative noise, compression or the diversion of airflow) - this category includes lateral sound i.e., /l/ as in ‘lead’ and /r/ sound as in ‘read’. Approximant sounds; therefore, are not fricative and never contain interruptions to the flow of air.

The BBC accent of English has four approximant sounds:

Bilabial: /w/ as in *whack*

Alveolar: /l/ and /r/ as in *lack* and *rack*

Palatal: /j/ as in *yak*

Sometimes, experts need to differentiate among various kinds of /r/ approximant (tap, flap and trill).

Q. Write a note on Diacritics.

While transcribing (accurately and in detail), a small mark is added to a phonetic symbol to show the way it is spoken. Diacritics include various marks such as accent marks (´ ˘ ˆ), the signs of devoicing [o] and nasalization [~]. The diacritic marks may be placed over a symbol, under it, before it, after it, or through it. The International Phonetic Association (IPA) recognizes a wide range of such marks (diacritics) for both vowels and consonants. In the case of vowels, diacritics indicate differences in frontness, backness, closeness or openness, and lip-rounding or unrounding, nasalization and centralization. On the other hand, in the case of consonants, diacritics are used for voicing or voicelessness, for advanced or retracted place of articulation, aspiration and many other aspects.

For a detailed transcription, diacritics are used to a symbol in order to narrow its meaning. The following six diacritics are quite important for attempting the detailed transcription exercises:

S. No:	Feature	Symbol	Examples	Transcription
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6. Voiceless	◌ [◌]	(small circle below)	quick	/kwɪk/
7. Aspirated	◌ ^h	(small /h/ above)	kiss	/k ^h ɪs/
8. Dental	◌ [̣]	(dental sign below)	health	/hə [̣] lθ/
9. Nasalized	◌ [̃]	(tilde symbol above)	man	/mæ̃n/
10. Velarized	◌ [̤]	(tilde symbol through)	pill	/p [̤] ɪl ^h /
11. Syllabic n	◌ _◌	(small vertical line below)	mitten	/mɪ _◌ n/

Q. Define Aspiration.

Aspiration is a puff of noise made when a consonantal constriction is released and air is allowed to escape relatively freely (e.g., in English /p t k/ at the beginning of a syllable are aspirated). Phonetically, aspiration is the result of the vocal cords being widely parted at the time of the articulatory release.

Q. Define Nasalization.

Nasalization is an articulatory process whereby a sound is made ‘nasal’ (when the air is passing through the nasal cavity) due its adjacent nasal sound (it is an articulatory influence of an adjacent nasal consonant, as in words like *mat* or *hand*). A vowel can also be nasalised in words like *man* (when /a/ may be articulated with the soft palate lowered throughout), because of the nasal consonants’ influence (this is called anticipatory coarticulation).

Q. Differentiate nasal and nasalized.

Remember that there is a difference between a ‘nasal’ and a ‘nasalised’ sound. A sound is nasalized when the nasality comes from other sounds (such as above where the vowel would be referred to as a ‘nasalized’ vowel) whereas the ‘nasal’ term suggests that the nasality is an essential identifying feature of a sound (in Urdu there are many nasal sounds). A ‘nasalized consonant’, on the other hand, is a consonant which, though normally oral, is articulated in a nasal manner because of some adjacent (nasal) sound.

Q. Define velarisation.

Velarization, in phonetics, secondary articulation in the pronunciation of consonants, in which the tongue is drawn far up and back in the mouth (toward the velum, or soft palate), as if to pronounce a back vowel such as *o* or *u*. Velarization is not phonemic in English, although for most English speakers the *l* in “feel” is velarized, but the *l* in “leaf” is not. It is distinctive in some languages (e.g., Arabic). Velarized consonants may be distinguished from velar consonants, in which the primary articulation involves the back of the tongue and the velum; in velarized consonants there must always be some other primary articulation.

Q. Define quality in term of articulation.

Quality is a term used in auditory phonetics and phonology to refer to the characteristic resonance, or timbre of a sound, which is the result of the range of frequencies constituting the sound’s identity. Variations in vowels are describable in terms of quality, (e.g. the distinction between [i] and [e] vowels etc.) would be called a qualitative difference.

Q. Write a note on Diphthong.

Diphthong is a single vowel consisting of the features of two vowels. Its most important feature is the glide from one vowel quality to another one (so basically it is a glide). The BBC accent of English contains a large number (eight in total) of diphthongs including three ending at /ɪ/ (eɪ, aɪ, oɪ – as in words *bay*, *buy* and *boy*), two ending at /ʊ/ (əʊ, aʊ – as in words *no* and *now*) and three ending at /ə/ (ɪə, eə, ʊə – as in words *peer*, *pair* and *poor*).

Q. Differentiate diphthong and triphthong.

A diphthong is a vowel where there is a single (perceptual) noticeable change in quality during a syllable (as in English words *beer*, *time* and *loud*) A triphthong is a vowel where two such changes can be heard.

Q. What is Rhotic Vowels? Explain briefly.

English pronunciation can be divided into two main accent groups:

- A rhotic speaker pronounces the letter "R" in *hard* and *water*.
- A non-rhotic speaker does not pronounce it in *hard*, and will only pronounce it in *water* if the following word begins with a vowel.

In other words, rhotic speakers pronounce "R" in all positions, while non-rhotic speakers pronounce it only if it is followed by a vowel.

In phonetics, an r-colored or rhotic vowel (also called a retroflex vowel, vocalic r, or a rhotacized vowel) is a vowel that is modified in a way that results in a lowering in frequency of the third formant.^[1] R-colored vowels can be articulated in various ways: the tip or blade of the tongue may be turned up during at least part of the articulation of the vowel (a retroflex articulation) or the back of the tongue may be bunched. In addition, the vocal tract may often be constricted in the region of the epiglottis

Q. Describe different forms of the vowel.

A vowel may take one out of three forms: stressed, unstressed and reduced. Most of the time a vowel is completely pronounced when it is in a stressed syllable but the same vowel is different in quality (allophonic form) when it takes place in an unstressed syllable, and, of course, it is reduced to another form when it is in a reduced syllable. Remember that in most cases, various reduced vowels are taking the shape of a schwa vowel /ə/. The symbol /ə/ may be used to show many types of vowels with a central, reduced vowel quality. A vowel in an unstressed syllable does not necessarily have a completely reduced quality.

Q. Write a brief note on Tense and Lax Vowels.

Lax vowels, remember, are short. Tense vowels are also called long vowels; this name is slightly misleading because, in RP English at least, the tense vowels have variable length; they can be much longer than the lax vowels, but under certain conditions they become clipped, or shortened to roughly lax vowel length. Tense vowels, then, have more variable length than lax vowels. Tense vowels can be unchecked; that is, they can occur at the end of a word.

Lax sounds are produced with less muscular effort and movement, and are relatively short and indistinct vowel sounds (e.g., i, e, ɒ, æ, ʌ, ʊ, ə vowels articulated near the center of the vowel area) compared to tense sounds (e.g., u:, i:, ɜ:, a:, ʊə, iə). In other words, a lax vowel is said to be the one produced with relatively little articulatory energy.

Q. Write a brief note on Fortis and Lenis Consonants.

In linguistics, fortis and lenis, also called tense and lax, refer to consonants pronounced with greater and lesser energy. English has fortis consonants, such as the p in pat, with a corresponding lenis consonant, such as the b in bat. Fortis and lenis consonants may be distinguished by tenseness or other characteristics, such as voicing, aspiration, glottalization, velarization, length, and length of nearby vowels. Fortis and lenis were coined for languages where the contrast between sounds such as p and b does not involve voicing.

Fortis and Lenis Consonants These are the terms used in the phonetic classification of consonantal sounds on the basis of their manners of articulation. Fortis refers to a sound made with a relatively strong degree of muscular effort and breath force compared with the other sound (known as lenis). The distinction between tense and lax is used for vowels on the similar lines.

Q. Define stress.

Stress is basically a prominence of syllable in terms of loudness, length, pitch and quality and all of them work together in order to make a syllable stressed. Stress is a term used in phonetics to refer to the degree of force (for making it louder and longer) used in producing a syllable. In terms of its linguistic function, stress is often treated under two different headings: word stress (lexical stress) and sentence stress (emphatic stress).

Q. Describe the degrees of stress.

In the American structuralist tradition, **four** such degrees are usually distinguished, and analyzed as stress phonemes, namely (from strongest to weakest) (1) 'primary', (2) 'secondary', (3) 'tertiary' and (4) 'weak'. These contrasts are, however, demonstrable only on words in isolation as in the compound *elevator operator*. In phonological analysis, most of the experts only distinguish among **three** degrees of stress namely 'primary', 'secondary' and 'weak' or 'unstressed' (e.g., ɪg. zæm.ɪ. 'neɪ.ʃən).

Q. Differentiate word stress and sentence stress.

Two types of stress are important. Firstly, stress on a syllable within a word (the lexical stress) which changes the grammatical category of a word (compare **insult** with *insult*) and also change meaning among other things. On the other hand, stress on a word or certain words in a phrase or sentence. This type of stress (on word(s) within sentences) is called sentence level or prosodic stress. This is, in fact, a change or modification to word level stress in a sentence which is basically a change of 'beat' on certain words in a sentence. Remember that, we create 'rhythm' in spoken language on the basis of stress.

Q. Define Tone.

Although 'tone' as a word has a very wide range of meanings and uses in ordinary languages, its meaning in phonetics and phonology is quite restricted. It refers to an identifiable movement or level of pitch that is used in a linguistically contrastive way. In typical 'tone' languages, the linguistic function of tone is to change the meaning of a word. In the case of tone languages, it is usual to identify tones as being a property of individual syllables, whereas an intonational tone may be spread over many syllables. Similarly, in the analysis of English intonation, tone refers to one of the pitch possibilities for the tonic (or nuclear) syllable, a set usually including fall, rise, fall-rise and rise-fall, though others are also suggested by various experts.

Q. What is intonation?

Intonation, in phonetics, the melodic pattern of an utterance. Intonation is primarily a matter of variation in the pitch level of the voice (*see also* tone), but in such languages as English, stress and rhythm are also involved. Intonation conveys differences of expressive meaning (*e.g.*, surprise, anger, wariness).

In many languages, including English, intonation serves a grammatical function, distinguishing one type of phrase or sentence from another. Thus, “Your name is John,” beginning with a medium pitch and ending with a lower one (falling intonation), is a simple assertion; “Your name is John?”, with a rising intonation (high final pitch), indicates a question.

Q. Define airstream mechanism.

All human speech sounds are produced by making the air move (in oral and nasal cavity) thus creating the airstream. Now the study of how and what type of air move is involved is called the airstream mechanism. In other words, ‘airstream’ is a term used in phonetics for a physiological process which provides a source of energy capable of being used in speech sound production

Most commonly, the air is moved outwards from the body (creating an egressive airstream) but more rarely, speech sounds are also made by drawing air inward (into the body – an ingressive airstream).. There are various forms and mechanisms for initiating the air move. The most common is when the air is moved inwards or outwards by initiating air movement involving ‘lungs’ (the pulmonic airstream), which is used for producing the majority of human speech sounds. The ‘glottalic’ airstream mechanism, as its name suggests, uses the movement of the glottis - the aperture between the vocal folds as the source of energy. The third one is the ‘velaric’ airstream mechanism which involves an airflow produced by a movement of the back of the tongue against the velum.

Q. Write a brief note on Pulmonic airstream mechanism.

Pulmonic airstream mechanism is the most commonly used mechanism for speech production by human beings. Almost all the sounds we produce in speaking are created with the help of air compressed by the lungs. The adjective used for this lung-created airstream is ‘pulmonic’: the pulmonic airstream may be ingressive (as in breathing in) but for speaking practically, it is always egressive (speech sounds are produced while pushing the air out). In order to understand this mechanism, we’ll have to analyze the human respiratory system. Under this system, the respiratory muscles set the air in motion. Lungs – the sponge like tissues – contained within air cage called the diaphragm – contract and enlarge lung cavity thus creating the egressive – ingressive actions. This mechanism set an air flow for speech production and human beings produce speech sounds while pushing the air out.

Q. Write a brief note on Glottalic Airstream Mechanism.

This mechanism involves ‘glottis’ as the adjective could be used to refer to anything pertaining to the glottis. A glottalic airstream is produced by making a tight closure of the vocal folds and then moving the larynx up or down thus raising of the larynx pushes the air outwards causing an egressive glottalic airstream. Similarly, while lowering, the larynx pulls air into the vocal tract and it is called an ingressive glottalic airstream. Sounds of this type found in human language are called ejective or implosive respectively. Glottalization as a process is used for any articulation involving a simultaneous glottal constriction (*e.g.*, a glottal stop). In English, glottal stops are often used in this way to reinforce a voiceless plosive at the end of a word as in *what*. Such sounds, made while the glottis is closed, are

produced without the direct involvement of air from the lungs. Air is compressed in the mouth or pharynx above the glottal closure, and released while the breath is still held thus the resultant sounds produced in this glottalic airstream mechanism are known as ejective sounds. They are also called 'glottalic' or glottalized sounds (though the latter term is often restricted to sounds where the glottal feature is a secondary articulation). In languages like Quechua and Hausa ejective consonants are used as phonemes. A further category of sounds involving a glottalic airstream mechanism is known as implosive.

Q. Write a brief note on Velaric Airstream Mechanism

In addition to pulmonic and glottalic airstream mechanisms, there is a third possibility involving velum. Under this mechanism, speech sounds are made by sucking the air (see airstream). This sucking mechanism is used first by babies for feeding and by adult humans in later stages of life for such things as sucking liquid through a straw or drawing smoke from a cigarette (using the back of the tongue against the velum). The basic mechanism for this is the air-tight closure between the back of the tongue and the soft palate, just as if the tongue is then retracted, and the pressure in the oral cavity is lowered and suction takes place. Consonants produced with this mechanism are called clicks. These sounds have a distinctive role in some languages such as Zulu. In English, they may be heard in the 'tut tut' (or tsk tsk) sounds, and in a few other contexts.

Q. Write a note on phonation.

'Phonation' is a technical term used for describing the forms of vibration of the vocal folds (or vocal cords) and the process is more commonly known as voicing. The term phonation has slightly different meanings depending on the subfield of phonetics. Among some phoneticians, *phonation* is the process by which the vocal folds produce certain sounds through quasi-periodic vibration. This is the definition used among those who study laryngeal anatomy and physiology and speech production in general. Phoneticians in other subfields, such as linguistic phonetics, call this process *voicing*, and use the term *phonation* to refer to any oscillatory state of any part of the larynx that modifies the airstream, of which voicing is just one example. Voiceless and supra-glottal phonations are included under this definition

Q. Write a note on types of phonation.

There are mainly four possible glottis/larynx settings or types of phonation:

1. **Voiceless** – when the folds are open apart and the air passing through the glottis freely (/t/ or /p/).
2. **Voiced** – when the folds are tight together and there is vibration during the air passage through the glottis (e.g., /b/ or /d/).
3. **Creaky** voice – when there is a slight opening in the front and the arytenoid cartilages are tight together, so that the vocal folds can vibrate only at the anterior end (the small opening at the top).
4. **Breathy** or **murmuring** sound – when the vocal folds are apart but still they are vibrating - a breathy voice is like a whisper except voice.

Q. Define Voice Onset Time (VOT).

Voice Onset Time (VOT) is a term used in phonetics referring to the point in time at which vocal-fold vibration starts in relation to the release of a closure (during the production of plosive sounds).

Q. Write a brief note on delay in VOT.

In order to understand VOT, the three types of plosive sounds are to be explained – voiced, voiceless and a voiceless aspirated sound. For example, during the production of a fully voiced plosive (e.g., /b/ or /g/), the vocal folds vibrate throughout; in a voiceless unaspirated plosive (such as /p/ or /t/), there is a delay (or lag) before voicing starts; and, in a voiceless aspirated plosive (e.g., /p^h/ or /t^h/), the delay is much longer, depending on the amount of aspiration. The amount of this delay is called Voice Onset Time (VOT) which in relation to the types of plosive varies from language to language.

Q. Define types of VOT.

There are three possible types of VOT based on the nature of stop sounds.

1. Firstly, simple unaspirated voiceless stops have a voice onset time at or near zero. This means that the voicing of a following vowel begins at or near to when the stop is released.
2. The second possibility is when aspirated stops are followed by a vowel: voice onset time is greater than zero called a positive VOT. The length of the VOT in such cases is based on the practical measure of aspiration – the longer the VOT, the stronger the aspiration lasts twice as long as that of English - 150ms).
3. The third possibility is when voiced stops have a VOT noticeably less than zero called "negative VOT". This would simply mean that the vocal cords start vibrating before the stop is released.