

B. Tech. Sem - VIII (Electronics) (2014 COURSE) (CBCS) :
SUMMER - 2019

SUBJECT: ELECTIVE – II SPEECH PROCESSING

Day: Thursday
Date: 30/05/2019

Time: 02.30 PM TO 05.30 PM
Max Marks.: 60

S-2019-2906

N.B. :

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data, if necessary.

Q.1 Classify the phonemes with the help of tree diagram. **(10)**

OR

Q.1 What is speech perception? Discuss the different models of speech perception. **(10)**

Q.2 Describe the frequency domain parameters used in speech analysis. **(10)**

OR

Q.2 a) What is short-time speech analysis? **(06)**

b) Discuss the windowing function used for speech signal. **(04)**

Q.3 Describe the following quantizer:- **(10)**

- i)** Uniform quantizer
- ii)** Non-uniform quantizer
- iii)** Companded quantizer
- iv)** Adaptive quantizer

OR

Q.3 a) What is speech coding? Classify the different speech coding techniques. **(04)**

b) Describe the channel vocoder with the help of neat diagram. **(06)**

Q.4 Discuss the following speech synthesis methods. **(10)**

- i)** Formant synthesis
- ii)** Concatenative synthesis
- iii)** Articulatory synthesis

OR

Q.4 a) What is the principle of speech synthesis? **(06)**

b) Briefly describe the synthesis by rule. **(04)**

Q.5 List out different speech enhancement techniques. Describe any two techniques in detail. **(10)**

OR

Q.5 Discuss the nature of interfering sounds in speech signal. **(10)**

Q.6 a) Describe Training and Recognition mode for speech recognition. **(06)**

b) What is the difference between speech recognition and understanding? **(04)**

OR

Q.6 Briefly discuss the Hidden Markov model (HMM) in detail. **(10)**

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