

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -3 EXAMINATION- 2023

B.Tech-VIII Semester (ECE)

COURSE CODE (CREDITS): 19B1WEC836 (03)
COURSE NAME: Applied medical signal processing
COURSE INSTRUCTORS: Dr. Sunil Datt Sharma

MAX. MARKS: 35

MAX. TIME: 2 Hours

Note: (a) All questions are compulsory.

(b) Marks are indicated against each question in square brackets.

(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

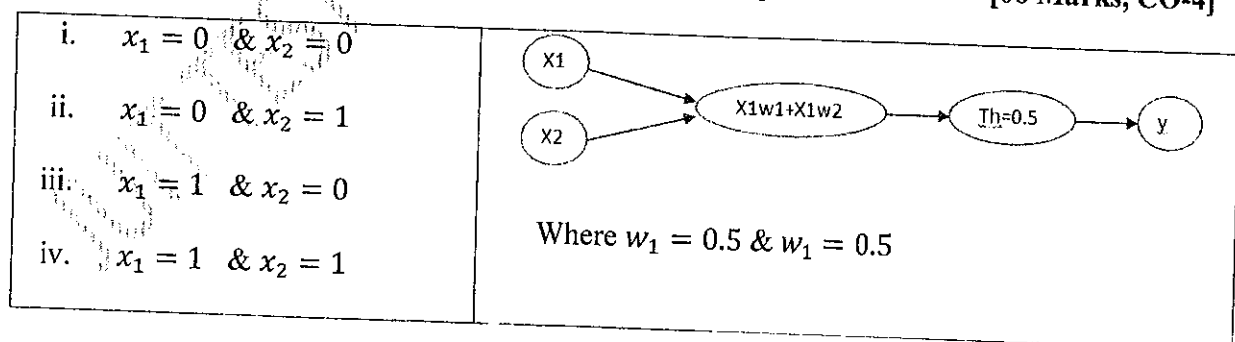
Q1. Four typical dominant brain normal rhythms, from high to low frequencies. Draw these for types of waveform along with frequency and status of the brain. **[06 Marks, CO-1]**

Q2. Explain the higher moments skewness, kurtosis, negentropy, and Kulback–Laibler (KL) distance, which are useful to check the non-Gaussianity of the signals. **[06 Marks, CO-3]**

Q3. Why do we need short time Fourier transform (STFT) for signal processing instead of Discrete Fourier transform? Justify your answer with an example. Also, write the difference between DFT and STFT. **[06 Marks, CO-3]**

Q4. Why do we need Continuous wavelet transform (CWT) instead of Short Time Fourier transform? Justify your answer with an example. Also, write the difference (minimum two) between CWT and STFT. **[06 Marks, CO-3]**

Q5. Compute the output “y” for each input for the given figure? **[06 Marks, CO-4]**



Q6. Discuss the performance evaluation parameters Sensitivity, Specificity, Accuracy for the imbalance dataset for the machine learning model. **[05 Marks, CO-4]**