JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATIONS-2022

B.Tech-IIIV Semester (ECE)

COURSE CODE (CREDITS): 19B1WEC836(3) MAX. MARKS: 35

COURSE NAME: Applied Medical Signal Processing

COURSE INSTRUCTORS: Dr. Salman Raju Talluri MAX. TIME: 2 Hours

Note: *All questions are compulsory. Marks are indicated against each question in square brackets.*

Q1. Write in detail about the Fisher linear discriminant analysis. [5]

Q2. Under the concept of unsupervised pattern classification, write about the significance of different distance functions and a simple cluster-seeking algorithm. [5]

Q3. What do you mean by periodogram? Explain the significance of windowing concerning spectral resolution and leakage. [5]

Q4. Derive the expression for impulse response of the matched filter. [5]

Q5. With a neat block diagram, explain multiplicative Homomorphic filtering in the signal processing. [5]

Q6. With the help of moving average filter mathematical equations, explain the procedure to remove random noise given only one realization of the signal or event of interest. [5]

Q7. Define the following terms briefly [5]

a. Kurtosis and skewness.
b. Relationship between autocorrelation functions and power spectral density.
c. The Complex Cepstrum.
d. Linear convolution and Circular convolution.
e. Derivative based methods for QRS detection.