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JAYPEE UNIVERSITY OF INFORMATRION TECHNOLOGY, WAKNAGHAT

TEST 2, EXAMINATIONS- Oct, 2017

B. Tech, ECE, VII Semester

COURSE CODE: 17B1WEC731   **MAX. MARKS: 25**

COURSE NAME: Time-Frequency Analysis and Its Application

COURSE CREDITS: 03   **MAX. TIME: 1.5 HRs**

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q.1.	Discuss the CFAR detection in joint time-frequency domain with block diagram	05
Q.2.	Derive the mathematical expression of the received radar signal for vibration induced Doppler.	05
Q.3.	What are the micro-Doppler signatures? Also, Explain the time domain signature, frequency domain signature, and time-frequency domain signatures for the rotation of helicopter blades.	05
Q.4	Define the following: (a) Range profile (b) Cross range (c) Doppler frequency profile (d) Probability of false alarm	02
Q.5	Write the advantage and disadvantage STFT , CWT	02
Q.6	What is the difference between linear and Quadratic time-frequency tools?	02
Q.7	Describe in brief the following term: (a) Role of uncertainty principle in Time-frequency analysis. (b) Ambiguity function (c) Wigner-Ville distribution (d) Choi-Williams distribution	04