R09

Code No: D7007

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech II - Semester Examinations, March/April 2011
RADAR SIGNAL PROCESSING
(ELECTRONICS AND COMMUNICATION)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks
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1. a) What is the basic principle of pulse radar? List out the various frequency bands along with frequency ranges that are used for radar applications.
   b) Define radar cross section of a target and find the expression for a complex target cross section? [6+6]

2. a) What is a delay line canceller? Draw its block diagram.
   b) List the advantages and disadvantages of Line-pulse modulator? [6+6]

3. a) Explain about CFAR reference windows.
   b) With the help of generic detection processor, explain about the cell-averaging CFAR concept. [6+6]

4. a) Describe the clutter mapping technique used for detection of moving targets.
   b) Three different types of detectors are employed for detection of radar signals in noise. Explain about one of the detectors. [6+6]

5. The linear frequency modulation and the phase coded pulse are two out of many types of modulations used for pulse compression. Explain about phase coded pulse compression. [12]

6. a) With help of a block diagram, explain moving target detector system.
   b) Explain about coincidence detection. [6+6]

7. a) Write the important properties of Frank poly-phase codes.
   b) Describe the performance of radar systems using phase-coded waveforms in the presence of noise. [6+6]

8. a) Describe the radar ambiguity function.
   b) Draw the block diagram of a phase coded CW radar. [6+6]

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