

Code No: **R41044****R10****Set No. 1****IV B.Tech I Semester Supplementary Examinations, March - 2017****RADAR SYSTEMS****(Electronics and Communication Engineering)****Time: 3 hours****Max. Marks: 75****Answer any FIVE Questions****All Questions carry equal marks***********

- 1 a) With neat diagram, explain the block diagram of conventional pulse radar with a super heterodyne receiver? [10]
b) Write the frequency bands with their nomenclature? [5]
- 2 a) Explain the need of integration of pulses in radar system? Derive the radar Range equation in terms of integration of pulses? [10]
b) The average time between false alarms is specified as 30 min and the receiver band width is 0.4 MHz.
i) What is the probability of false alarm?
ii) What is threshold-to-noise power ratio? [5]
- 3 a) Explain the working principle of FM-CW altimeter. [8]
b) Explain the need of non-zero IF receiver? Explain the working principle of Non-zero IF Receiver. [7]
- 4 a) Explain the butterfly effect in MTI radar? [8]
b) Explain about limitations to MTI performance. [7]
- 5 a) How the target can track with phase comparison Method? Explain? [8]
b) What is the need of AGC circuit in tracking radar systems? Explain the working principle of AGC circuit? [7]
- 6 a) List out the differences & advantages of reflector antennas & lens antennas. [8]
b) Write short notes on phase shifters in radar antennas? [7]
- 7 a) With suitable diagram, explain the working principle of correlation detection filter. [7]
b) Write a short note on constant false alarm rate receiver. [8]
- 8 Write short notes on
i) T_{eff} of N-Cascade system [5]
ii) F_n of N-Cascade system [5]
iii) Phased array Antennas [5]