

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

\*\*\*\*\*

- 1 a) Explain the basic principle of a radar? Derive the radar range equation at ideal conditions? [10]  
b) If the roundtrip travel time of a signal is  $1 \mu \text{ sec}$ . Then calculate the range to a target in terms of meters, yards, feet, nautical mile and statute mile. [5]
- 2 a) Explain the classification of radar cross section of targets? [8]  
b) Explain in detail about plumbing losses & Duplexer losses? [7]
- 3 a) Explain the working principle of multiple frequency CW radar. [8]  
b) Write short notes on measurement errors? [7]
- 4 a) What is a delay line canceller? Explain the operation of double delay line canceller. [8]  
b) Explain the working principle of MIT radar with power oscillator transmitter. [7]
- 5 a) Explain the working principle of sequential lobing tracking. [8]  
b) Explain the fluctuation effects on tracking system [7]
- 6 a) Describe the types of reflector antennas and explain the working of any one type of reflector antenna? [10]  
b) Define Grating lobe? How to eliminate grating lobe in array antenna system? [5]
- 7 a) Derive the expression for SNR of a matched filter. [8]  
b) Compare the response of matched filter in white noise & non-white noise? [7]
- 8 Write short notes on  
a) Branch type duplexer [4]  
b) Balanced type duplexer [4]  
c) CRT Screens [7]