| (Following Roll No. to be filled by candidate) | |
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| Roll No. | |

# M TECH
# THIRD SEMESTER EXAMINATION 2016-2017
# DCE033
# RADAR ENGINEERING

Time: 3 Hours Max. Marks: 100

Note:

- Attempt any five questions.
- All questions are equal marks.
- All symbols have usual meaning.

1. (a) Discuss the "Detection of Signals in Noise". Also discuss the receiver noise and the signal-to-noise ratio.
   (b) Define the pulse repetition frequency? And explain the probability density functions.

2. (a) Derive the radar Range equation.
   (b) Explain the principal of operation and radiation pattern of electronically steered phased array antenna.

3. (a) Describe the principle of operation of hard tube modulator solid state transmitter.
   (b) Describe the construction, principle of operation bunching of two-cavity Klystron amplifier.

4. (a) Draw the block diagram of MTI Radar and explain the function of each block.
   (b) Draw the block diagram of simple CW-Radar and explain the function of each block.

5. (a) Draw the block diagram of simple tracking phased array radar and explain the function of each block.
   (b) Explain the function of N-Pulse delay line canceller.

6. (a) Describe the construction, principle of operation and application of TWT.
   (b) Derive the frequency response function of the matched filter.

7. (a) Describe the construction principle of operation of Magnetron.
   (b) Describe the construction, Operation and uses of Lens antenna.

8. Write short notes on any two.
   (a) Language Modeling
   (b) Scanning feed reflector antenna
   (c) Text-analytical Text to Speech Synthesis