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

M TECH
THIRD SEMESTER EXAMINATION 2017-2018
DCE033
RADAR ENGINEERING

Time: 3 Hours Max. Marks: 100

Note:

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

1. **Attempt any two parts**. [2x10]
   a. State and explain the probability density function.
   b. Explain the pulse repetition frequency and range ambiguities.
   c. Describe minimum detectable single receiver noise.

2. **Attempt any two parts**. [2x10]
   a. Draw the block diagram of pulse Doppler radar and Tracking radar. Also explain the function of each block.
   b. Draw the block diagram of MTI radar and explain the function of each block.
   c. Describe Phased array radar.

3. **Attempt any two parts**. [10X2]
   a. Describe the construction, characteristics and application of Klystrons.
   b. Explain the construction, characteristics and application of TWT.
   c. Describe the line type modulator and hard tube modulator.

4. **Attempt Any Two Parts**. [2x10]
   a. Describe electronically steered phased array antenna.
   b. Describe a horn antenna. How this antenna fed and what is their application?
   c. Describe the constructional details of principles of operation of parabolic reflector and lens antennas. Discuss the relative merits and demerits of these antennas.

5. **Write short notes on any two**. [2x10]
   a. Matched filter receiver correlation detection.
   b. Magnetron
   c. Model based recognition and speaker identification.