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

M TECH
THIRD SEMESTER EXAMINATION 2015-2016
DCE033
RADAR ENGINEERING

Time: 3 Hours **Max. Marks: 100**

Note: Attempts all Questions. All Questions carry equal marks.

1. Attempt any **TWO** questions: [2 x10]

a. Derive the simple form of the radar equation. Draw the block diagram of radar and explain the function of each.
b. How the signal is detected in Noise. Explain the signal noise and signal to noise ratio.
c. Define probability distribution function. Also define
(i) Uniform PDF (ii) Guassian PDF (iii) Rayleigh PDF (iv) Exponential PDF

2. Attempt any **TWO** questions : [2 x 10]

a. Draw the block diagram of simple CW radar, simple phase radar and explain the function of each block.
b. Draw the block diagram of MTI radar and explain the function each block.
c. What do you mean by delay line canceller? Explain frequency response of the single delay – line canceller. Also define blind speeds

3. Attempt any **TWO** questions : [2 x 10]

a. Describe the low level modulators and high level modulators.
b. Describe the construction, principle of operation, characteristics and application of two cavity klystrom amplifiers.
c. Explain the principle of operation of magnetron and derive the hull cutoff voltage equation.

4. Attempt any **TWO** questions: [2x10]

a. Describe the detail electronically steered phased array anteena.
b. Prove that the output peak – signal – to mean noise ratio of a matched filter depend only on the total energy of the received signal and the noise power per unit bandwidth.
c. Describe the Doppler and Tracking Radar

5. Write Short notes on any **TWO** questions: [2 x10]
   a. Lens antenna.
   b. Parabolic antenna
   c. Language Modelling and speaker identification

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