Code No: **RT41048**   **R13**   Set No. 1

IV B.Tech I Semester Supplementary Examinations, March – 2017
RADAR SYSTEMS
(Electronics and Communication Engineering)

Time: 3 hours   Max. Marks: 70

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B
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PART–A *(22 Marks)*

1. a) Describe the brief history of Radar Communications.   [4]

    b) Explain the antenna beam-shape loss in Radar.   [4]

    c) What are the limitations of MTI Radar? Explain.   [3]

    d) What is the effective aperture area of an antenna?   [3]

    e) Compare the non-matched filter with the matched filter.   [4]

    f) Explain, how a circulator acts as Duplexer?   [4]

PART–B *(3x16 = 48 Marks)*

2. a) What are the different models for representing the fluctuations of radar targets? [8]
        Explain any one.
    b) Explain the operation of monostatic radar with a neat diagram.   [8]

3. a) Draw the block diagram of a FM-CW altimeter and explain its operation.   [8]
    b) Why the isolation is needed between the transmitter and receiver in CW radar. [8]

4. a) Explain the operation of MTI Radar with power amplifier transmitter with the
        help of a neat diagram.   [8]
    b) Explain the principle of non-coherent MTI Radar.   [8]

5. a) Explain the principle operation and advantages of sequential lobing tracking
        radar.   [8]
    b) Explain the principle and applications of Radomes.   [8]

6. a) What are the various types of feed used for the phased arrays? Explain.   [8]

    b) Derive the frequency response characteristics of a matched filter.   [8]

7. a) Explain the radiation pattern of phased array antennas.   [8]
    b) Explain the series and parallel feeds for phased array antennas.   [8]