Roll No. ..... Total No. of Pages : 2

BT–8/M09 10238

Radar Engineering

Paper : ECE-404 E

Time : Three Hours] [Maximum Marks : 100

Note :- Attempt any **FIVE** questions selecting at least **ONE** question from each unit.

UNIT–I

1. (a) Discuss block diagram of a RADAR system and also explain the functions of each parts in detail. 10

   (b) Explain the RADAR frequencies and also explain the applications of radar system. 10

2. (a) Give a brief working principle of radar system. What are the factors that determine the range of radar ? 10

   (b) Derive radar range equation. 10

UNIT–II

3. (a) Explain the Doppler Effect. Differentiate between simple CW Doppler radar and MTI Radar system with the help of block diagram. 10

   (b) Explain the working of simple CW Doppler radar with the help of a block diagram. 10

4. (a) An MTI radar operates at 5GHz with a pulse repetition frequency (PRF) of 800pps. Calculate the lowest three blind speeds of this radar. 10

   (b) Discuss application of short pulses to radar. How dispersive delay lines can be used as pulse compression filters ? 10

UNIT–III

5. (a) Explain different type of tracking radar systems. Discuss any one in detail help of block diagram. 10

   (b) What is radar tracking ? 10

6. (a) Explain amplitude comparison monopulse tracking radar with the help of a block diagram. 10

   (b) Explain the conical scan and sequential lobing. 10

UNIT–IV

7. (a) Calculate the minimum receivable signal in a radar receiver which has an IF bandwidth of 1.5 MHz and a NF, 9dB. 10

   (b) Write a short note on PPI displays. 10

8. Discuss likelihood ratio receiver and Inverse probability receiver for detecting radar signals in noise. Derive relationship between two receivers. 20