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(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0307 Roll No.

B.Tech

(SEM VII) ODD SEMESTER THEORY EXAMINATION 2009-10
FUNDAMENTALS OF RADAR & NAVIGATION

Time : 3 Hours] *[Total Marks : 100*

Note : *Attempt **all** questions. **All** questions carry **equal** marks.*

1 Attempt any **four** parts of the following : **5×4=20**

(a) Explain the working of pulse radar with the help of block diagram.

(b) Derive a radar range equation considering internal noise of receiver.

(c) Explain the working of CW radar with the help of block diagram.

(d) Explain briefly how FMCW radar is used for measurement of range.

(e) Explain MTI radar and give its limitations.

(f) Describe different application of Radar.

2 Attempt any **two** parts of the following : **10×2=20**

(a) Discuss the ambiguity function and matched filter for the pulse burst waveforms.

(b) Explain pulse by pulse processing, and doppler filter response.

(c) Describe the working of non-coherent MTI radar, with the help of block diagram.

3 Attempt any **two** parts of the following : **10×2=20**

(a) Give the Albersheim's equations and explain the accuracy of this equation.

(b) Briefly discuss the radar detections as hypothesis testing.

(c) What do you understand by detection of signal in noise? Explain automatic detection process.

4 Attempt any **two** parts of the following : **10×2=20**

(a) What is radar beacons? What are the various applications of this system?

(b) Briefly explain the function of TECAN.

(c) What is blind speed and how can you avoid it? What is the necessity of delay line canceller? Describe various types of delay lines used in MTI radar.

5 Attempt any **two** parts of the following : **10×2=20**

(a) VOR errors and MAVSTAR

(b) LORAN

(c) DME and Swerling model.
