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SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act, 1956)

Course & Branch: M.E-W-Applied Electronics

Title of the Paper: Radar Signal Processing

Max. Marks: 80

Sub. Code: 735E01

Time: 3 Hours

Date: 29/10/2010

Session: FN

PART - A

(6 X 5 = 30)

Answer ALL the Questions

1. Enumerate and explain the advantages of Radar.
2. Draw the block diagram of a simple CW radar and explain its principle.
3. What is ambiguity diagram? Explain its significance.
4. What are the types of radar signals? Explain them briefly.
5. What are the methods of recovery of information from samples? Explain them.
6. What is the principle of coherent integration? Explain.

PART – B

(5 x 10 = 50)

Answer ALL the Questions

7. (a) Explain in detail the need and origin of radar.
(b) Derive radar range equation. Explain the limitations of it.
(or)
8. (a) Define and explain all the radar parameters.
(b) Give an account on “RCS of targets”.

9. (a) What is the need and principle of pulse compression in radar? Explain in detail.
(b) Explain in detail any one type of pulse compression with a neat diagram.
- (or)
10. (a) What is an optimum filter? Explain its characteristics.
(b) State and prove the properties of matched filters.
11. Explain the principle of non coherent integration of signal plus clutter with neat sketches.
- (or)
12. Write technical notes on
(a) Kaiser-Bessel windows
(b) Clipped windows
(c) Convolution with impulses.
13. (a) Explain the principle of basic MTI with a neat block diagram
(b) Explain the principle of De-Stagger with a neat diagram.
- (or)
14. (a) What is clutter locking? Explain in detail.
(b) Explain the CW processor with anti-alias filter a neat sketch.
15. (a) Draw a neat block diagram of SAR and explain its working in detail.
(b) Give an account on JDL processor.
- (or)
16. Write short notes on “Parallel micro programmed processor in MTI radar for infrared airborne radars”.