SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act,1956)

Course & Branch :M.E - W-AEL
Title of the Paper :Radar Signal Processing   Max. Marks :80
Sub. Code :735E01   Time : 3 Hours
Date :06/03/2010   Session :AN

PART - A   (6 x 5 = 30)
Answer ALL the Questions

1. What is the difference between monostatic radar and bi static radar? Explain.

2. Define Duty cycle. Explain the significance of it.

3. What is the need for pulse compression? Explain.

4. What is an optimum filter? Explain its characteristics

5. What is the principle of Interpolation? Explain.

6. What is Blind Speed? Explain.

PART – B   (5 x 10 = 50)
Answer ALL the Questions

7. (a) Draw a neat block diagram of pulsed radar and explain its principle in detail.
   (b) Explain the advantages and potential applications of radar.
                            (or)
8. Derive the simple form of radar range equation. Explain the limitations of the equation.

9. (a) Explain the significance of ambiguity diagram.

(b) Explain the principle of any one pulse compression technique with a neat diagram.

(or)

10. (a) Explain the types of radar signals.
    (b) Give an account on "CFAR Receivers"

11. (a) Explain the principle of non coherent integration of signals with neat diagrams.
    (b) Explain the principle of discrete correlation with neat diagrams.

(or)

12. (a) Explain the properties of Fourier transform.
    (b) Give an account on "Clipped Windows".

13. (a) Explain the principles of MTI with neat block diagram.
    (b) Explain the principle of De-stagger with a neat sketch.

(or)

14. Explain the following in detail.
    (a) Antenna scanning
    (b) Clutter maps
    (c) MTI improvement factor.

15. Explain the radar signal processors for pulse compression and power efficiency.

(or)

16. Write technical notes on:
    (a) SAR Signal processor
    (b) JDL Processor