Code No: R05410404 **R05** **Set No. 2**

IV B.Tech I Semester Examinations,November 2010
RADAR SYSTEMS
Common to Electronics And Telematics, Electronics And Communication Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Determine the probability of detection of the Radar for a process of threshold detection with a graphic illustration.
   (b) Determine the Radar cross-section of a cone sphere. [8+8]
2. (a) What is the difference between matched filter and non-matched filter?
   (b) Discuss the efficiency of non matched filters. [8+8]
3. (a) Why the step error and quantization errors which occur in cycle counter are used for frequency measurement in FMCW Radar?
   (b) Draw the block diagram of sinusoidally modulated FMCW radar and explain the function of each block. [8+8]
4. (a) Explain how earphones are used as an indicator in CW Radar?
   (b) The transmitter power is 1 KW and safe value of power which might be applied to a receiver is 10mW. Find the isolation between transmitter and receiver in dB. Suggest the appropiate isolator. [6+10]
5. (a) Draw the block diagram of a Basic radar and Explain how it works?
   (b) Derive the simple form of the Radar equation. [8+8]
6. (a) Explain the block diagram of amplitude comparison mono pulse for extracting error signals in both elevation and azimuth.
   (b) With diagrams explain Split-range-gate tracking. [8+8]
7. (a) Explain the function of time domain filter with an example.
   (b) An MTI radar operates at 10GHz with a PRF of 300 pps. Calculate the lowest blind speed? [8+8]
8. (a) Draw the structures of balanced duplexer during transmission and reception modes.
   (b) List out the merits and demerits of phased array antennas. [8+8]

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Code No: R05410404 **R05** **Set No. 4**

IV B.Tech I Semester Examinations,November 2010
RADAR SYSTEMS
Common to Electronics And Telematics, Electronics And Communication Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Explain the block diagram of amplitude comparison mono pulse for extracting error signals in both elevation and azimuth.
   (b) With diagrams explain Split-range-gate tracking. [8+8]
2. (a) Draw the block diagram of a Basic radar and Explain how it works?
   (b) Derive the simple form of the Radar equation. [8+8]
3. (a) Draw the structures of balanced duplexer during transmission and reception modes.
   (b) List out the merits and demerits of phased array antennas. [8+8]
4. (a) Explain how earphones are used as an indicator in CW Radar?
   (b) The transmitter power is 1 KW and safe value of power which might be applied to a receiver is 10mW. Find the isolation between transmitter and receiver in dB. Suggest the appropiate isolator. [6+10]
5. (a) Why the step error and quantization errors which occur in cycle counter are used for frequency measurement in FMCW Radar?
   (b) Draw the block diagram of sinusoidally modulated FMCW radar and explain the function of each block. [8+8]
6. (a) What is the difference between matched filter and non-matched filter?
   (b) Discuss the efficiency of non matched filters. [8+8]
7. (a) Determine the probability of detection of the Radar for a process of threshold detection with a graphic illustration.
   (b) Determine the Radar cross-section of a cone sphere. [8+8]
8. (a) Explain the function of time domain filter with an example.
   (b) An MTI radar operates at 10GHz with a PRF of 300 pps. Calculate the lowest blind speed? [8+8]

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Code No: R05410404 **R05** **Set No. 1**

IV B.Tech I Semester Examinations,November 2010
RADAR SYSTEMS
Common to Electronics And Telematics, Electronics And Communication Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Why the step error and quantization errors which occur in cycle counter are used for frequency measurement in FMCW Radar?
   (b) Draw the block diagram of sinusoidally modulated FMCW radar and explain the function of each block. [8+8]
2. (a) What is the difference between matched filter and non-matched filter?
   (b) Discuss the efficiency of non matched filters. [8+8]
3. (a) Explain the block diagram of amplitude comparison mono pulse for extracting error signals in both elevation and azimuth.
   (b) With diagrams explain Split-range-gate tracking. [8+8]
4. (a) Explain how earphones are used as an indicator in CW Radar?
   (b) The transmitter power is 1 KW and safe value of power which might be applied to a receiver is 10mW. Find the isolation between transmitter and receiver in dB. Suggest the appropiate isolator. [6+10]
5. (a) Determine the probability of detection of the Radar for a process of threshold detection with a graphic illustration.
   (b) Determine the Radar cross-section of a cone sphere. [8+8]
6. (a) Draw the structures of balanced duplexer during transmission and reception modes.
   (b) List out the merits and demerits of phased array antennas. [8+8]
7. (a) Explain the function of time domain filter with an example.
   (b) An MTI radar operates at 10GHz with a PRF of 300 pps. Calculate the lowest blind speed? [8+8]
8. (a) Draw the block diagram of a Basic radar and Explain how it works?
   (b) Derive the simple form of the Radar equation. [8+8]

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Code No: R05410404 **R05** **Set No. 3**

IV B.Tech I Semester Examinations,November 2010
RADAR SYSTEMS
Common to Electronics And Telematics, Electronics And Communication Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Draw the block diagram of a Basic radar and Explain how it works?
   (b) Derive the simple form of the Radar equation. [8+8]
2. (a) Explain the function of time domain filter with an example.
   (b) An MTI radar operates at 10GHz with a PRF of 300 pps. Calculate the lowest blind speed? [8+8]
3. (a) What is the difference between matched filter and non-matched filter?
   (b) Discuss the efficiency of non matched filters. [8+8]
4. (a) Why the step error and quantization errors which occur in cycle counter are used for frequency measurement in FMCW Radar?
   (b) Draw the block diagram of sinusoidally modulated FMCW radar and explain the function of each block. [8+8]
5. (a) Explain how earphones are used as an indicator in CW Radar?
   (b) The transmitter power is 1 KW and safe value of power which might be applied to a receiver is 10mW. Find the isolation between transmitter and receiver in dB. Suggest the appropiate isolator. [6+10]
6. (a) Determine the probability of detection of the Radar for a process of threshold detection with a graphic illustration.
   (b) Determine the Radar cross-section of a cone sphere. [8+8]
7. (a) Draw the structures of balanced duplexer during transmission and reception modes.
   (b) List out the merits and demerits of phased array antennas. [8+8]
8. (a) Explain the block diagram of amplitude comparison mono pulse for extracting error signals in both elevation and azimuth.
   (b) With diagrams explain Split-range-gate tracking. [8+8]

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