

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

IV B.TECH II SEMESTER ADVANCE SUPPLEMENTARY EXAMINATIONS, JUNE-2018Subject: Radar Systems

Branch: ECE

Time: 3 hours

Max. Marks: 75

PART – A**I. Answer ALL questions of the following**

5x1Mark=5 Marks

1. How transmitted power affects the range?
2. Define Doppler Effect
3. Write the equation of improvement factor in MTI radar.
4. What are the various techniques of Tracking Radar?
5. Define noise temperature.

II. Answer ALL questions of the following

10x2Mark=20 Marks

1. What are the precautions to be taken to minimize false alarm?
2. With the 3MHz bandwidth of the radar receiver, calculate the highest range resolution realization realizable with the radar.
3. List out the applications of CW Radar
4. Write short note on receiver band width.
5. Discuss the advantage of double delay line canceller over single delay canceller.
6. Define MTI Radar and explain its significance.
7. Write any two comparisons among various tracking techniques.
8. What are the advantages of monopulse over conical scanning?
9. Define Radiation pattern and beam width.
10. What is Notch filter?

PART-B**Answer ALL questions of the following**

5x10 Marks= 50Marks

1. a) Derive the Simple form of Radar Equation
b) Derive the expression for Noise Figure.

OR

2. Explain the quantitative analysis of receiver and hence derive the expression for minimum detectable signal.
3. Explain how Doppler direction is identified with FMCW radar.

OR

4. Derive the expression for range and Doppler measurement in FMCW radar.
5. Explain the principle of MTI Radar and explain its operation using power Oscillator transmitter.

OR

6. Explain in detail the filter characteristics of the delay line canceller
7. Explain the principle of operation of phase comparison monopulse tracking with block diagram.

OR

8. Explain how tracking in range achieved by split range gates.
9. Discuss in detail about branch type and balanced type duplexers.

OR

10. Explain how a circulator can be utilize for a radar receiver protection.

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IV B.TECH II SEMESTER ADVANCE SUPPLEMENTARY EXAMINATIONS, JUNE-2018Subject: Satellite Communications

Branch: ECE

Time: 3 hours

Max. Marks: 75

PART – A**I. Answer ALL questions of the following**

5x1Mark=5 Marks

1. What is Geostationary Satellites?
2. Which circuit provides channelization in a transponder?
3. Define CDMA?
4. What is meant by spot beam antenna?
5. Explain packet switching?

II. Answer ALL questions of the following

10x2Mark=20 Marks

1. Write short notes on historical background of satellite communication?
2. What are the advantages of satellite communications?
3. Write short notes on satellite antenna equipment.
4. What are the functions of TT&C?
5. Define atmospheric absorption.
6. What are the limitations of FDMA-satellite access?
7. Define earth segment.
8. What is monopulse?
9. List the applications of satellite packet communication.
10. Difference between message transmission of TDMA and FDMA.

PART-B**Answer ALL questions of the following**

5x10 Marks= 50Marks

1. Discuss about various Orbital elements in detail.

OR

2. Discuss about launching procedures.
3. Discuss about Attitude and Orbit Control system.

OR

4. Derive the downlink C/N ratio for the satellite without frequency reuse.
5. Define FDMA in detail and also enumerate the interference in FDMA?

OR

6. Discuss the effects of rain in satellite propagation.
7. Explain Earth station transmitter and receiver with diagrams.

OR

8. Explain about terrestrial interface of Earth station.
9. Write short notes on Packet Reservation.

OR

10. Explain about satellite packet switching in detail.

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IV B.TECH II SEMESTER ADVANCE SUPPLEMENTARY EXAMINATIONS, JUNE-2018Subject: Wireless Communications and Networks

Branch: ECE

Time: 3 hours

Max. Marks: 75

PART – A**I. Answer ALL questions of the following****5x1Mark=5 Marks**

1. What is meant by frequency reuse?
2. What is meant by PCS extension model?
3. Differentiate the propagation effects with mobile radio.
4. List the services provided by IEEE 802.11.
5. Give the details of typical data rates achievable by GSM.

II. Answer ALL questions of the following**10x2Mark=20 Marks**

1. Give three important functional blocks of GSM system.
2. Explain the principle of cellular networks.
3. What is Brewster angle?
4. What are the reasons for signal reflection?
5. Explain the Doppler Spread and Coherence Time.
6. Explain multipath propagation in wireless communication.
7. List the Bluetooth applications.
8. List the five types of logical channels in Bluetooth.
9. What is the purpose of the guard time in IEEE802.11a/ HIPERLAN2?
10. What is wireless ATM?

PART-B**Answer ALL questions of the following****5x10 Marks= 50Marks**

1. a) What are the advantages of cellular communication system over conventional mobile telephone system.
b) Describe the procedure for locating the co channel cells in the first tier using a regular hexagonal pattern for cellular architecture. Illustrate the procedure for a cluster size of 12.

OR

2. Explain the working of Landline telephone system with neat timing diagram.
3. Explain about the following path loss models
 - a) Okumura model
 - b) Hata model

OR

4. What are the propagation mechanisms of EM waves.

5. Explain the following systems for Small-Scale Multipath measurements

- a. Direct RF Pulse System
- b. Spread Spectrum sliding correlator

OR

6. a) What is Doppler shift? Write a short note on factors influencing the small-scale fading.

b) Explain the simulation of Clarke and Gans fading model.

7. a) Explain the nature of the interference between the Bluetooth and IEEE 802.11b?

b) What is the difference between a logical and a transport channel in HIPERLAN2?

OR

8. a) Discuss the applications supported by IEEE802.15 home RF technology?

b) Explain any one routing protocol in adhoc networking?

9. a) Explain about forward channel and reverse channel in CDPD physical layer?

b) What are the new elements added to the AMPS infrastructure to support CDPD?

OR

10. a) Explain the similarities between the medium access control of the HIPERLAN2 and DECT?

b) What is the symbol duration and guard time of the IEEE802.11a/ HIPERLAN2 OFDM modems? What is the purpose of the guard time?