Wireless Networking - Home Work 1_2_3_4

Lecture 1

1. Draw Electromagnetic wave showing electrical and magnetic fields.
2. List only the Signal propagation ranges with drawing.
3. Draw the Fresnel Zone.
4. Using a Point-to-Point radio system for a distance of d km (pick distance from table) and frequency of 11 GHz. The same device is used in both sides. The transmitting power is +22 dBm, and the built in antenna gain is 26 dBi. The Wireless radio has an integrated antenna, so there is no loss for cabling. On the receiving side the receive sensitivity is -70 dBm with the same gain antenna of the transmitting side. Calculate the link budget of this link with drawing illustration.
5. A wireless link for a distance of d km (pick distance from table), with one access point and one client radio. The access point is connected to an antenna with 13 dBi gain, with a transmitting power of 30 dBm. The client is connected to an antenna with 12 dBi gain, with a transmitting power of 12 dBm and a receive sensitivity of -85 dBm. The cables in both systems are short, with a loss of 2 dB at each side at the 7 GHz frequency of operation. Calculate the link budget of this link from access point to radio client with drawing illustration.

No	Student Name	Q4 distance	Q5 distance
1	Adam Muhammed Saber	4.7	6.5
2	Ahmed Ashti Ahmed	5	7.1
3	Ahmed Mahdi Ahmed	5.3	11
4	Ahmed Muayad Maghdid	5	10
5	Ali Dlshad Rostam	3.4	6.1
6	Ali Muhammed Ahmed	6.9	7.9
7	Anas Ahmed Ilhamdarweesh	5.7	7.1
8	Arman Beshr Ahmed	5.2	8
9	Avan Jamil Kakil	6.8	6.3
10	Awara Hemn Hasan	3.1	8.8
11	Aya Halmat Zyad	6.4	9.8
12	Bahjat Dedar Kakamin	4.3	8.6
13	Bayar Bashdar Majid Khudhir	3.4	8.9
14	Blnd Jamel Sabri	4.9	8.7
15	Chalak Barzan Hadi Mawlood	6.2	8.3
16	Chenar Farhad Othman	6.3	8.3
17	Eleka Ardalan Muhammed	5.1	6.6
18	Fahid Ihsan Sdeeq	6.7	8.2
19	Farshad Fathi Hamad	3.9	6
20	Fenik Hussin Jumaa	3.5	9.9
21	Hazhir Mamand Ahmed Dot	5.1	8.3
22	Kaiwan Kakl Hassan	6.3	6.4

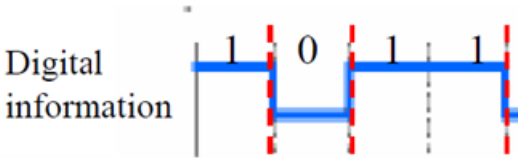
No	Student Name	Q4 distance	Q5 distance
23	Kale Qubad Aziz	4.4	9.5
24	Kaywan Faruq Kamal	4.6	9.1
25	Mahmood Emad Mohammed	5	7.1
26	Mawa Sarkawt Muhtasm	5.2	9.5
27	Mazen Mowaffak Al Seh	3.9	6.5
28	Muhammed Kakakhan Ahmed	4.3	8.5
29	Mustafa Salim Sharif	6.2	8.5
30	Najla Salah Fatah	3.1	7.1
31	Noor Muhammedamin Osman	5.4	6.3
32	Rawan Bestun Kareem	6.5	8.9
33	Rozhin Muhammad Mustafa	5.6	7.5
34	Sahand Fahmi Mustafa	5.3	9.8
35	Sahar Fakher Muhammed	4.3	6.9
36	Sarwat Shukri Hamo	4.5	6.8
37	Shad Abdullah Hussein	6.9	7.3
38	Shanaz Khalil Kareem Majeed	5.3	7.7
39	Sivar Edres Hamad	3.5	9.1
40	Staish Farhan Asaad	5.2	9.1
41	Yaran Dlman Ebrahim	5.1	9.8
42	Zhewar Ali Mustafa	6.3	6.8
43	Aram Farhad	4.3	7.8
44	Huda Baker	4.3	8.7

Lecture 2

1. Draw typical radiation pattern for Dipole antenna (Azimuth and Elevation patterns only)
2. Draw typical radiation pattern for Patch antenna (Azimuth and Elevation patterns only)
3. Draw typical radiation pattern for Sector antenna (Azimuth and Elevation patterns only)
4. Draw typical radiation pattern for Dish antenna (Azimuth and Elevation patterns only)

Lecture 3

1. **Draw a block diagram of Digital Communication System (Class Work)**
2. For the below data, please draw the resulting signal from
    - ASK,
    - FSK, and
    - PSK.



3. Draw the typical constellation diagram for the following digital modulation techniques:
    - ASK,
    - BPSK,
    - QPSK,
    - 4-QAm and
    - 16-QAM.
4. List The types of Multiple Access Techniques.

Lecture 4

1. List the three major Satellite Frequency Bands.
2. List Three Types of Satellites based on their Orbits.
3. **Draw Typical VSAT Network Diagram (Class Work)**
4. Draw VSAT Network Architectures – Two-Way for both:

- Star Topology
- Mesh Topology