Assignment-1

The due date for submitting this assignment has passed.

1. A 10-GHz transmitter has output impedance of 50 Ohms. For effective communication in 10-GHz band, a microwave antenna matched with 50-Ohm line is connected at the output of transmitter. The received signal strength is very low in comparison with the expected one. What one of the following units should be added between the transmitter and the antenna to improve the received signal strength?

   Low pass filter
   Band pass filter
   High pass filter
   Impedance matching network

   No, the answer is incorrect.

   Accepted Answer:
   Impedance matching network

   2 points

2. Which one of the following units is most desirable to be used between the receiver and the antenna for good strength of received signal?

   Signal noise filter
   Impedance matching network
   Low noise amplifier
   High power amplifier

   Yes, the answer is correct.

   Accepted Answer:
   Low noise amplifier

   2 points

3. An antenna of 30 dB gain is transmitting 10 W of power in 30-GHz frequency band (24,000-25,000 MHz), the power density at a distance of 50 m is in the range of ____________

   -10 dBm
   -75 dBm
   -85 dBm
   -92 dBm

   No, the answer is incorrect.

   Accepted Answer:
   -85 dBm

   2 points

4. Two identical transmitting and receiving antennas with gain of 10 dB at 2.40 GHz are separated by a distance of 0.5 m. If the transmitted power is 20 dBW, the power received will be:

   -11.6 dBm
   -74.4 dBm
   -92.4 dBm
   -98.4 dBm

   No, the answer is incorrect.

   Accepted Answer:
   -92.4 dBm

   2 points

5. To make a database of books in a library, the following can be used:

   - GPS model
   - WiFi
   - RF Transmitter
   - Signal Enhancer

   No, the answer is incorrect.

   Accepted Answer:
   GPS model

   2 points

6. The frequency range used by the FM radio stations is:

   88 kHz - 108 kHz
   88 kHz - 150 kHz
   150 kHz - 250 kHz
   320 kHz - 2.5 GHz

   Yes, the answer is correct.

   Accepted Answer:
   88 kHz - 108 kHz

   2 points

7. For less exposure of microwave radiation, one should choose a mobile phone with:

   - Power battery
   - Memory
   - SMT (specific absorption rate)
   - Processor

   No, the answer is incorrect.

   Accepted Answer:
   SMT (specific absorption rate)

   2 points

8. Power density of cell tower antennas decreases by a factor of ____ as ______ increases, where ______ is the distance from the cell tower antenna.

   - 1/3
   - 1/4
   - 1/5
   - 1/8

   No, the answer is incorrect.

   Accepted Answer:
   1/8

   2 points

9. In 2022, WHO has classified high-voltage transmission lines as:

   - Class I - carcinogenic to humans
   - Class 2A - probably carcinogenic to humans
   - Class 2B - possible carcinogenic to humans
   - Class 3 - not classifiable as to its carcinogenicity to humans

   No, the answer is incorrect.

   Accepted Answer:
   Class 2B - possible carcinogenic to humans

   2 points

10. Excessive use of cell phone over long period of time may cause:

   - Hearing problems
   - Increased in cancer risk
   - DNA damage
   - All of these

   No, the answer is incorrect.

   Accepted Answer:
   All of these

   2 points