COURSE NAME:

Signal Processing for mm Wave communication for 5G and beyond

Assignment- week 7

Type of Questions: MCQ

Number of Questions: 10 Total Marks:10*1=10

1. For a mm wave MISO system with single reflector, every path gain is considered to be of
   a) Nearly same amplitude and with different phase difference.
   b) Same phase difference with considerable different amplitude gain.
   c) Different amplitude and different phase difference.
   d) Similar amplitude and phase difference.

   Correct option: a)

   Detailed sol: lecture 31.

2. For a single reflector (azimuth configuration) mm wave system with 2 transmitter and 2 receiver antennas, the number of unknown variables for channel estimation are
   a) 4
   b) 5
   c) 3
   d) 1
   Correct option: b)
   Detailed solution: Lecture 32
3. For mm wave communication beamforming, which type of antennas are used for your handset?
   a) parabolic dish antenna.
   b) Horn antenna.
   c) Array of isotropic antenna.
   d) both a) and b).

   Correct option: c)

   Detailed solution: lecture 32

4. The beampattern direction and sharpness for mm Wave communication is controlled by
   a) Transmitting power.
   b) Only Antenna spacing.
   c) reflection coefficient of the reflectors.
   d) Antenna spacing and number of antennas.
   Correct option: d)
   Detailed solution: lecture 32
5. For a 2×2 MIMO system in sub 6 GHz channel model, number of variables to be estimated for channel estimation is
   a) 4
   b) 5
   c) 3
   d) 1
   Correct answer: a)

Detailed solution: lecture 32

6. Array manifold vector in transmitter side and receiver side depends on
   a) Angle of Aperture only.
   b) Angle of departure only.
   c) Both a) and b).
   d) None of the above.

   Correct Answer: c)

   Detailed solution: lecture 33

7. The phase associated to the reference point in array manifold vector containing 5 antenna elements in one antenna array is
   a) 0 degree.
   b) 90 degrees.
   c) 180 degrees.
   d) 36 degrees.
   Correct answer: a)
   Detailed solution: lecture 33
8. The phase associated to every element in array manifold vector in receiver side depends on
   a) Position vector of the antenna array elements.
   b) Direction of receiving the signal.
   c) Direction of transmitting the signal.
   d) Both a) & b)
   Correct answer: d)
   Detailed solution: lecture 33.
9. Which of the following corresponds to the unit of field intensity?
   a) Power/area.
   b) Power.
   c) Power/solid angle.
   d) None of the above.
   Correct answer: c)
   Detailed solution: lecture 35
10. The unit of poynting vector
   e) Watt/ meter^2.
   f) Watt
   g) Watt*meter.
   h) Watt/meter.
   Correct answer: a)
   Detailed solution: lecture 35