GIET UNIVERSITY, GUNUPUR – 765022
M. Tech (Second Semester Examinations) – October' 2021
MPEEC2042 – MIMO SYSTEMS
(E.C.E)

Time: 2 hrs   Maximum: 50 Marks

(The figures in the right hand margin indicate marks)
PART – A

Q.1. Answer *ALL* questions   (2 x 10 = 20)

a. What is MIMO antenna?

b. Is it possible to combine cable and antenna signals? Justify.

c. What is polarization diversity in wireless communication?

d. Why RAKE receiver is so important for the reception of cellular signals?

e. What are the impacts of pre-distortion in communication?

f. What is the purpose of MIMO channel equalization?

g. What is the difference between precoding and beamforming?

h. Define spectral efficiency and spectral density.

i. What is mapping in LTE?

j. How the channel can be estimated in OFDM?

PART – B   (6 x 5 = 30 Marks)

Answer *ANY FIVE* questions   Marks

2. Draw the model for multipath propagation and derive the expression for response of the   (6)
    wireless channel. Also state the effects of Multipath propagation.

3. Describe the various techniques in MIMO transmission.   (6)

4. Describe the 4 X 4 MIMO antenna.   (6)

5. How Channel State Information (CSI) could be obtained from matrix generated in Spatial   (6)
    Channel Modelling (SCM)?

6. Write the principle of operation of beamforming in MIMO system.   (6)

7. Differentiate between: (6)

    i.   switched beamforming and adaptive beamforming.
    ii. AWGN and Rayleigh fading channel

8. Explain the channel estimation architecture with a neat diagram.   (6)

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