

Total No. of Questions : 4]

SEAT No. :

PF-321

[Total No. of Pages : 1

Apr-26/TE/Insem-406
T.E. (E & TC)
CELLULAR NETWORK
(2019 Pattern) (Semester - VI) (304192)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the Candidates :

- 1) *Answer the Q1. Or Q2 and Q3 or Q4.*
- 2) *Neat diagram must be drawn wherever necessary.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Use of Calculator is allowed.*
- 5) *Assume suitable data if necessary.*

- Q1)** a) What is diversity? Explain its types in brief. [5]
b) Employing the Hata model, compute the median loss at a distance $d=8$ km, when the carrier frequency $f_c = 2.1$ GHz, $h_t=40$ m, $h_r = 2$ m for a large city. [4]
c) Illustrate the concept fading and explain Multipath Fading. [6]
- Q2)** a) Explain ground- reflection scenario. [5]
b) Explain free space propagation model & derive the formula
$$P_t = \frac{P G_t G_r \lambda^2}{(4\pi)^2 d^2} \cdot$$
 [5]
c) Explain in details concept of channel estimation in wireless communication. [5]
- Q3)** a) Explain with neat diagram working of OFDM transmitter. [5]
b) Write advantages, disadvantages & applications of MIMO-OFDM. [6]
c) Explain Cyclic Prefix in OFDM. [4]
- Q4)** a) Explain multicarrier transmission. [5]
b) Define smart antenna and explain the types of smart antenna in brief. [5]
c) Compare OFDM and MIMO OFDM. [5]

