

--	--	--	--	--	--	--	--	--	--



## GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Seventh Semester – Regular) Examinations, November – 2022

### BPEEC7010- Mobile Communication (ECE)

Time: 3 hrs

Maximum: 70 Marks

#### Answer ALL Questions

The figures in the right hand margin indicate marks.

#### PART – A: (Multiple Choice Questions)

(1 x 10 = 10 Marks)

- Q.1. Answer ALL questions** [CO#] [PO#]
- a. Mobile unit traveling through different cells enters different frequency allows the control taken by \_\_\_\_.
- |                   |                    |     |     |
|-------------------|--------------------|-----|-----|
| (i) Base stations | (ii) Servers       | CO1 | PO1 |
| (iii) Antenna     | (iv) All the above |     |     |
- b. Paging system uses which mode of transmission? CO1 PO1
- |                   |                  |  |  |
|-------------------|------------------|--|--|
| (i) Full duplex   | (ii) Simplex     |  |  |
| (iii) Half Duplex | (iv) Half Duplex |  |  |
- c. Which of the following is an example of local wireless system? CO1 PO1
- |            |                                |  |  |
|------------|--------------------------------|--|--|
| (i) GSM    | (ii) Cordless telephone system |  |  |
| (iii) UMTS | (iv) GPRS                      |  |  |
- d. Which one is not a TDMA standard of second generation networks? CO2 PO1
- |            |             |  |  |
|------------|-------------|--|--|
| (i) GSM    | (ii) IS-136 |  |  |
| (iii) AMPS | (iv) PDC    |  |  |
- e. How many users or voice channels are supported for each 200 KHz channel in GSM? CO2 PO1
- |                  |             |  |  |
|------------------|-------------|--|--|
| (i) Eight        | (ii) Three  |  |  |
| (iii) Sixty four | (iv) Twelve |  |  |
- f. Which is one of the disadvantages of 2G standards? CO2 PO1
- |                                   |                                |  |  |
|-----------------------------------|--------------------------------|--|--|
| (i) Short Messaging Service (SMS) | (ii) Digital modulation        |  |  |
| (iii) Limited capacity            | (iv) Limited Internet Browsing |  |  |
- g. Which type of antenna is used for edge excited cells? CO3 PO1
- |                                      |                     |  |  |
|--------------------------------------|---------------------|--|--|
| (i) Omnidirectional antenna          | (ii) Grid antenna   |  |  |
| (iii) Sectorized directional antenna | (iv) Dipole antenna |  |  |
- h. What is a cluster in a cellular system? CO3 PO1
- |                            |                              |  |  |
|----------------------------|------------------------------|--|--|
| (i) Group of frequencies   | (ii) Group of cells          |  |  |
| (iii) Group of subscribers | (iv) Group of mobile systems |  |  |
- i. Capacity of a cellular system is directly proportional to \_\_\_\_\_ CO4 PO1
- |                               |  |  |  |
|-------------------------------|--|--|--|
| (i) Number of cells           | (ii) Number of times a cluster is replicated |  |  |
| (iii) Number of Base stations | (iv) Number of users                         |  |  |
- j. Interference in control channel leads to \_\_\_\_\_ CO4 PO1
- |                     |                    |  |  |
|---------------------|--------------------|--|--|
| (i) Cross talk      | (ii) Queuing       |  |  |
| (iii) Blocked calls | (iv) Voice traffic |  |  |

**PART – B: (Short Answer Questions)****(2 x 10 = 20 Marks)**Q.2. Answer ALL questions

	[CO#]	[PO#]
a. State some of the features of CDMA.	CO1	PO1
b. Define efficiency of TDMA.	CO1	PO1
c. Write the disadvantages of cellular system.	CO2	PO1
d. List the methods to improve coverage and capacity in cellular systems.	CO2	PO1
e. What is call blocking and termination?	CO2	PO1
f. List the services of GSM.	CO3	PO1
g. Mention the different types of cells.	CO3	PO1
h. Write the formula for co-channel reuse ratio.	CO3	PO1
i. What is adjacent channel interference?	CO4	PO1
j. Mention the different types of cells.	CO4	PO1

**PART – C: (Long Answer Questions)****(10 x 4 = 40 Marks)**Answer ALL questions

	Marks	[CO#]	[PO#]
3. a. How would you deal with the assignment problems when some assignments are prohibited?	5	CO1	PO2
b. What is the main reason to use cellular systems over telephone systems?	5	CO1	PO1
(OR)			
c. Explain WiFi and WiMax.	5	CO1	PO1
d. Differentiate between soft and hard hand off.	5	CO1	PO2
4. a. Briefly define IEEE 802.1 services.	5	CO2	PO1
b. Write short notes on mobile ad hoc networks.	5	CO2	PO1
(OR)			
c. Derive an expression for signal to interference ratio (S/I) for 7 cell cluster system.	5	CO2	PO2
d. Explain with suitable timing diagram, how a cellular telephone call is set up.	5	CO2	PO1
5. a. How would you deal with the assignment problems when some assignments are prohibited?	5	CO3	PO1
b. What are the different techniques used for increasing the capacity and improving the coverage in cellular system? Explain them.	5	CO3	PO1
(OR)			
c. With suitable block diagram explain the GSM system.	5	CO3	PO2
d. Explain about second and third generation wireless network.	5	CO3	PO1
6. a. Explain about the TDMA.	5	CO4	PO1
b. Explain the TDMA frame structure and derive the efficiency of a TDMA system.	5	CO4	PO1
(OR)			
c. Explain the concept of CDMA. What are its merits and demerits?	5	CO4	PO1
d. Why CDMA is needed and explain it with an example?	5	CO4	PO2

--- End of Paper ---