Q. Code:534951

Reg. No. | | | | | | | | | | | | | |

B. E / B. TECH.DEGREE EXAMINATIONS, MAY 2024

Fifth Semester

OE18707 – FUNDAMENTALS OF WIRELESS COMMUNICATION

(Common to all branches except ECE)

(Regulation 2018 /Regulation2018A)

TIME:3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Distinguish and understand the major cellular communication standards and wireless communication networks.	**3**
CO 2	Gain insights of cellular architecture.	**2**
CO 3	Design and implement various access mechanisms.	**4**
CO 4	Design and implement wireless network environment for any application using latest wireless protocols and standards.	**4**
CO 5	Distinguish the features of 4G, 5G techniques and 6G enablers.	**3**

PART- A (10x2 = 20 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	Give examples of simplex, half duplex and full duplex communications.	**1**	**4**
2.	Define the terms FVC and RVC.	**1**	**2**
3.	Find the cluster size ‘N’ and co-channel reuse factor ’Q’ for i=3 and j=3	**2**	**4**
4.	Why hexagonal geometry is preferred in a cellular architecture?	**2**	**4**
5.	What is ISI? How does cyclic prefix help to reduce ISI?	**3**	**4**
6.	Draw the block diagram of OFDM transmitter.	**3**	**2**
7.	List some applications of WLAN.	**4**	**3**
8.	What are the considerations for choosing UHF technology?	**4**	**2**
9.	Why 4G is described as MAGIC?	**5**	**4**
10.	What do 4G wireless systems focus on?	**5**	**2**

PART- B (5x 14=70Marks)

			Marks	CO	RBT LEVEL
11. (a)	**(i)**	Compare various generations of Wireless Communication Systems.	**(7)**	**1**	**4**
	(ii)	Illustrate using a timing diagram how the call to a mobile user is initiated from a mobile subscriber.	**(7)**	**1**	**4**

(OR)

(b)	**(i)**	Compare different kinds of wireless systems with relevant diagrams.	**(7)**	**1**	**4**
	(ii)	Illustrate using a timing diagram how the call to a mobile user is initiated from a landline subscriber.	**(7)**	**1**	**4**
12. (a)	**(i)**	Illustrate a proper hand-off scenario with relevant diagram.	**(10)**	**2**	**4**
	(ii)	Discuss about various types of interferences that hinder the working of a cellular system. How can it be handled?	**(4)**	**2**	**4**
		(OR)			
(b)	**(i)**	There is always a trade-off between maximizing capacity and quality of service. Justify the statement for cellular communication.	**(10)**	**2**	**4**
	(ii)	Compare hard and soft hand-off.	**(4)**	**2**	**4**
13. (a)		Explain the techniques for improving coverage and increasing capacity in cellular systems.	**(14)**	**3**	**4**
		(OR)			
(b)		Determine the maximum throughput that can be achieved using Aloha and slotted Aloha protocols.	**(14)**	**3**	**4**
14. (a)		Write about WLAN media access control techniques. Also, illustrate the handling of hidden node and exposed node problems.	**(14)**	**4**	**2**
		(OR)			
(b)	**(i)**	Write short notes on Zigbee technology.	**(7)**	**4**	**2**
	(ii)	Write short notes on Wireless Sensor Networks.	**(7)**	**4**	**2**
15. (a)		Elaborate the features of 4G and its challenges.	**(14)**	**5**	**4**
		(OR)			
(b)		Highlight about smart antenna techniques and software defined radio techniques.	**(14)**	**5**	**4**

PART- C (1x 10 = 10 Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Compare multiple access techniques with suitable diagram.	**(10)**	**3**	**4**

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