Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem (Even) Examination May-2018

CA5EL06 Mobile Communications

Programme: MCA Branch/Specialisation: Computer Application

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. Direct sequence spread spectrum demodulation uses **1**

(a) DPSK (b) FSK (c) ASK (d) QPSK

ii. Guard band is **1**

(a) The small unused bandwidth between the frequency channels to avoid interference

(b) The bandwidth allotted to the signal

(c) The channel spectrum

(d) The spectrum acquired by the noise between the signal

iii. The shape for the cellular region for maximum radio coverage is: **1**

(a) Circular (b) Square (c) Oval (d) Hexagon

iv. Radio capacity may be increased in cellular concept by **1**

(a) Increase in radio spectrum

(b) Increasing the number of base stations & reusing the channels

(c) Both (a) and (b)

(d) None of these

v. 3G W-CDMA is also known as **1**

(a) UMTS (b) DECT (c) DCS-1800 (d) ETACS

vi. Commonly used mode for 3G networks is **1**

(a) TDMA (b) FDMA (c) TDD (d) FDD

vii. Which multiple access technique is used by IEEE 802.11 standard for wireless LAN? **1**

(a) CDMA (b) CSMA/CA (c) ALOHA (d) None of these

P.T.O.

viii. Which one of the following event is not possible in wireless LAN? **1**
(a) Collision detection
(b) Acknowledgement of data frames
(c) Multi-mode data transmission
(d) None of the mentioned

ix. In a piconet, there can be up to _____ parked nodes in the net. **1**
(a) 63 (b) 127 (c) 255 (d) 511

x. The VSAT technology is based on: **1**
(a) Wired Satellite technology (b) Wireless Satellite technology
(c) Both a and b (d) None of these

Q.2 i. Explain the significance of layered modelling. **4**

ii. Explain different multiple access control technique and compare them? **6**

OR iii. There are two senders A & B. The data of A is 100 and chipping sequence is 000110101000010111 and the data of B is 101 and chipping sequence is 01000100010110011.create the CDMA spread spectrum to transmit the data of A & B. also explain the process to recover the data at receiver end ? **6**

Q.3 i. How frequency reuse scheme improve the utilization of spectrum efficiency? **4**

ii. What is fading? How it is caused? Also discuss its type. **6**

OR iii. Explain the architecture of PCS. **6**

Q.4 i. What type of services IMT-2000 offer? Explain. **4**

ii. Describe the functional architecture of GPRS and protocols of a GPRS system. **6**

OR iii. What are the authentication and access grant processes in GSM? How is system security maintained? **6**

Q.5 i. Discuss the working and applications of WML protocol. **4**

ii. Discuss MACA and MACAW. **6**

OR iii. Explain the system architecture of WAP Model. **6**

Q.6 i. Discuss the components of VSAT system. **4**

ii. Show Master-Slave architecture in a Piconet of Bluetooth system. What are the states in which a Bluetooth device can be found? **6**

OR iii. Explain WLL architecture. **6**

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Marking Scheme
CA5EL06 Mobile Communications

Q.1	i.	Direct sequence spread spectrum demodulation uses (a) DPSK (Differential Phase Shift Keying)		**1**
	ii.	Guard band is (a) The small unused bandwidth between the frequency channels to avoid interference		**1**
	iii.	The shape for the cellular region for maximum radio coverage is: (d) Hexagon		**1**
	iv.	Radio capacity may be increased in cellular concept by (b) Increasing the number of base stations & reusing the channels		**1**
	v.	3G W-CDMA is also known as (a) UMTS (b) DECT		**1**
	vi.	Commonly used mode for 3G networks is (d) FDD		**1**
	vii.	Which multiple access technique is used by IEEE 802.11 standard for wireless LAN? (b) CSMA/CA		**1**
	viii.	Which one of the following event is not possible in wireless LAN? (a) Collision detection		**1**
	ix.	In a piconet, there can be up to _____ parked nodes in the net. (c) 255		**1**
	x.	The VSAT technology is based on: (b) Wireless Satellite Technology		**1**
Q.2	i.	Explanation with diagram.		**4**
	ii.	FDMA, TDMA, CDMA, SDMA		**6**
OR	iii.	CDMA spread spectrum to transmit the data of A	2 marks	**6**
		CDMA spread spectrum to transmit the data of B	2 marks	
		Process to recover the data at receiver end	2 marks	
Q.3	i.	Use of D = √3 N		**4**
	ii.	Fading	2 marks	**6**
		It caused	2 marks	
		Its type.	2 marks	
OR	iii.	Diagram	3 marks	**6**
		Explanation	3marks	
Q.4	i.	Explanation of IMT-2000 emphasis services		**4**
	ii.	Functional architecture of GPRS with diagram	2 marks	**6**
		Protocols of a GPRS system with diagram	4 marks	
OR	iii.	Authentication and access grant processes in GSM	4 marks	**6**
		System security maintained	2 marks	
Q.5	i.	Explanation of wireless mark up language		**4**
	ii.	MACA	3 marks	**6**
		MACAW	3 marks	
OR	iii.	System architecture of WAP Model.	(2 marks + 4 marks)	**6**
Q.6	i.	Components of VSAT system.	(2 marks for each, Max. 4 marks)	**4**
	ii.	Show Master-Slave architecture	2 marks	**6**
		States in which a Bluetooth device can be found	4 marks	
OR	iii.	Explain WLL architecture.	(2 marks + 4 marks)	**6**

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