Total No. of Questions: 6

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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.

i.	Direct sequence spread spectrum demodulation uses			1		
	(a) DPSK	(b) FSK	(c) ASK	(d) QPSK		
ii.	Guard band is	s			1	
	` '		between the fr	requency channels to		
	(b) The bandy	width allotted to the s	ignal			
	(c) The chann	nel spectrum				
(d) The spectrum acquired by the noise between the signal						
iii. The shape for the cellular region for maximum radio coverage is				io coverage is:	1	
	(a) Circular	(b) Square	(c) Oval	(d) Hexagon		
iv. Radio capacity may be increased in cellular concept by					1	
	(a) Increase is	n radio spectrum				
	(b) Increasing the number of base stations & reusing the channels					
	(c) Both (a) a	and (b)				
	(d) None of the	hese				
v. 3G W-CDMA is also known as						
	(a) UMTS	(b) DECT	(c) DCS-180	0 (d) ETACS		
vi.	Commonly used mode for 3G networks is				1	
	(a) TDMA	(b) FDMA	(c) TDD	(d) FDD		
					1	
wireless LAN?						
	(a) CDMA	(b) CSMA/CA	(c) ALOHA	(d) None of these		
	ii. iv. v.	(a) DPSK ii. Guard band i (a) The smal avoid inte (b) The bands (c) The chanr (d) The spects iii. The shape for (a) Circular iv. Radio capaci (a) Increase i (b) Increasing (c) Both (a) a (d) None of t v. 3G W-CDM (a) UMTS vi. Commonly u (a) TDMA vii. Which multipuireless LAM	(a) DPSK (b) FSK ii. Guard band is (a) The small unused bandwidth avoid interference (b) The bandwidth allotted to the second in the spectrum acquired by the residual iii. The shape for the cellular region of the calcular (b) Square iv. Radio capacity may be increased in the interest of the second in the spectrum (b) Increase in radio spectrum (b) Increasing the number of base (c) Both (a) and (b) (d) None of these v. 3G W-CDMA is also known as (a) UMTS (b) DECT vi. Commonly used mode for 3G network (a) TDMA (b) FDMA vii. Which multiple access technique wireless LAN?	(a) DPSK (b) FSK (c) ASK ii. Guard band is (a) The small unused bandwidth between the fravoid interference (b) The bandwidth allotted to the signal (c) The channel spectrum (d) The spectrum acquired by the noise between the iii. The shape for the cellular region for maximum rad (a) Circular (b) Square (c) Oval iv. Radio capacity may be increased in cellular conceptal (a) Increase in radio spectrum (b) Increasing the number of base stations & reusing (c) Both (a) and (b) (d) None of these v. 3G W-CDMA is also known as (a) UMTS (b) DECT (c) DCS-180 vi. Commonly used mode for 3G networks is (a) TDMA (b) FDMA (c) TDD vii. Which multiple access technique is used by IEEI wireless LAN?	(a) DPSK (b) FSK (c) ASK (d) QPSK ii. Guard band is (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: (a) Circular (b) Square (c) Oval (d) Hexagon iv. Radio capacity may be increased in cellular concept by (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 (a) UMTS (b) DECT (c) DCS-1800 (d) ETACS vi. Commonly used mode for 3G networks is (a) TDMA (b) FDMA (c) TDD (d) FDD vii. Which multiple access technique is used by IEEE 802.11 standard for wireless LAN?	

P.T.O.

	viii.	Which one of the following event is not possible in wireless LAN? (a) Collision detection (b) Acknowledgement of data frames	1				
		(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					
	х.	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.					
	ii.	Explain different multiple access control technique and compare	6				
OR	iii.	them? There are two senders A & B. The data of A is 100 and chipping	6				
OK	111.	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?					
Q.3	i.	How frequency reuse scheme improve the utilization of spectrum	4				
V .2	1.	efficiency?	•				
	ii.	What is fading? How it is caused? Also discuss its type.					
OR	iii.	Explain the architecture of PCS.					
Q.4	i.	What type of services IMT-2000 offer? Explain.	4				
~	ii.	Describe the functional architecture of GPRS and protocols of a	6				
	11.	GPRS system.	Ū				
OR	iii.	What are the authentication and access grant processes in GSM? How	6				
		is system security maintained?					
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				
		1	-				

Q.6	i.	Discuss the components of VSAT system.	4
	ii.	Show Master-Slave architecture in a Piconet of Bluetooth system.	6
		What are the states in which a Bluetooth device can be found?	
OR	iii.	Explain WLL architecture.	6

Marking Scheme CA5EL06 Mobile Communications

Q.1	i.	Direct sequence spread spectrum demodulation use	es	1
		(a) DPSK (Differential Phase Shift Keying)		
	ii.	Guard band is		1
		(a) The small unused bandwidth between the fr	equency channels to	
		avoid interference		
	iii.	io coverage is:	1	
		(d) Hexagon		
	iv.	Radio capacity may be increased in cellular concep	•	1
		(b) Increasing the number of base stations & reusing	ig the channels	
	V.	3G W-CDMA is also known as		1
		(a) UMTS (b) DECT		_
	vi.	Commonly used mode for 3G networks is		1
		(d) FDD	5 000 11 . 1 16	1
	vii.	Which multiple access technique is used by IEEE	2 802.11 standard for	1
		wireless LAN?		
	:::	(b) CSMA/CA Which are of the following event is not possible in	vvinalaga I A NIO	1
	viii.	Which one of the following event is not possible in (a) Collision detection	i wireless LAIN?	1
	ix.	In a piconet, there can be up to parked node	s in the net	1
	IA.	(c) 255	s in the net.	1
	х.	The VSAT technology is based on:		1
	Λ.	(b) Wireless Satellite Technology		1
		(b) Wheless Satellite Teelinology		
Q.2	i.	Explanation with diagram.		4
C .–	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 = $\sqrt{3}$ 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 emphase	sis 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 p	rocesses in GSM	4 marks	6
		System security maintained		2 marks	
Q.5	i.	Explanation of wireless mark up l	anguage		4
	ii.	MACA		3 marks	6
		MACAW		3 marks	
OR	iii.	System architecture of WAP Mod	lel. (2 n	narks + 4 marks)	6
Q.6	i.	Components of VSAT system.	(2 marks for each	n, Max. 4 marks)	4
	ii.	Show Master-Slave architecture		2 marks	6
		States in which a Bluetooth devic	e can be found	4 marks	
OR	iii.	Explain WLL architecture.	(2 m	narks + 4 marks)	6
