

Reg.No. _____



Karunya UNIVERSITY

(Karunya Institute of Technology & Sciences)
(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

End Semester Examination – Nov/Dec – 2016

Code : **14EC3049**
Sub. Name : **Mobile Communication Networks**

Semester : **2016-17 ODD**
Duration : **3hrs**
Max. marks : **100**

ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	In GSM TDMA/FDD, the total spectrum allocated is 25MHz and the channel bandwidth is 200KHz. If 8 speech channels are supported, find the number of simultaneous users that can be accommodated assuming no guard band.	CO1	10
	b.	What is the multiple access method used in IEEE 802.11 WLAN? Explain the operation using suitable timing diagram and flow chart.	CO1	10
(OR)				
2.	a.	List the important features of TDMA. Compare TDMA and FDMA.	CO1	10
	b.	How throughput is increased in slotted ALOHA compared to pure ALOHA?	CO1	10
3.	a.	In CDMA, for a sender A sending '0' using code 010011 and sender B sending '1' using code 110101, show that their corresponding receivers can receive their signals without any interference.	CO1	10
	b.	What are the three basic procedures in Mobility management.	CO1	10
(OR)				
4.	a.	Differentiate the sleep modes used in IS-136 and IEEE 802.11.	CO3	10
	b.	What type of power control mechanism is used in IS-95 CDMA and GSM?	CO3	10
5.	a.	What is the role of VAD in cellular communication?	CO2	10
	b.	What is the need for Mobile IP? List the entities and terminologies used in Mobile IP.	CO2	10
(OR)				
6.	a.	In mobile networks, When handoff should be initiated?	CO2	10
	b.	Consider an AMPS network in which a MS is located at a distance of $R/3$ from its own BS, where R is the radius of the cell. If the radio propagation in the cell has a distance-power gradient of four, what must be the transmit power in order to operate it at lowest possible S_r . What are the advantages of doing so?	CO1	10
7.	a.	Why Radio propagation studies are required?	CO1	10
	b.	Determine the path loss between the Base station and Mobile station of a 1.8 GHz PCS system operating in a high rise urban area. The Mobile station is located in a perpendicular street to the location of the Base station. The distance of the base station and the mobile station to the corner of the street are 10 and 40 meters respectively. The Base station height is 20m.	CO1	10
(OR)				
8.	a.	What is the need for Universal Mobile Technology System? Detail the significant features of the radio access system for UMTS.	CO3	20
<u>Compulsory:</u>				
9.	a.	What is the difference between the 802.11g and 802.11a and 802.11b?	CO3	10
	b.	What is cryptography? illustrate a symmetric key algorithm.	CO2	10

ALL THE BEST