

Name:	 UPES UNIVERSITY WITH A PURPOSE
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2019

Course: B.Tech CSE+TI
Program: Mobile Communication Network Design
Course Code: CSIB 350

Semester: 6th
Time 03 hrs.
Max. Marks: 100

Instructions: Attempt all the questions. This question paper contains 2 pages.

SECTION A

S. No.		Marks	CO									
Q 1	Define the term mobile computing and also give any suitable example with merit of mobile computing.	4	CO4									
Q 2	<i>The selection of the best suitable topology is needed for continuous and low cost solution. List the four main topologies. Give disadvantages wherever applicable.</i>	4	CO1									
Q 3	Discuss about the security aspects of mobile communication.	4	CO2									
Q 4	Compare LTE relay & LTE repeater.	4	CO1									
Q 5	Give the number of carriers/TRX/Signal Channels/Comm. Channels for the GSM spectrum bands as given in table below:	4	CO3									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">S.no</th> <th style="width: 40%;">Starting frequency</th> <th style="width: 50%;">Ending frequency</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.</td> <td>892(UL)/937(D/L)</td> <td>895(UL)/940(D/L)</td> </tr> <tr> <td style="text-align: center;">2.</td> <td>910.5(U/L)/955.5(D/L)</td> <td>913.5(U/L)/958.5(D/L)</td> </tr> </tbody> </table>			S.no	Starting frequency	Ending frequency	1.	892(UL)/937(D/L)	895(UL)/940(D/L)	2.	910.5(U/L)/955.5(D/L)	913.5(U/L)/958.5(D/L)
S.no	Starting frequency			Ending frequency								
1.	892(UL)/937(D/L)			895(UL)/940(D/L)								
2.	910.5(U/L)/955.5(D/L)	913.5(U/L)/958.5(D/L)										

SECTION B

Q 6	Define a cluster. The formula for number of cells in cluster is given by $N=i^2 + j^2 + ij$ where $i \geq 0, j \geq 0$. Draw the clusters for various possible cluster sizes.	10	CO4
Q 7	Compare active DAS with passive DAS. Also write a short note on Hybrid DAS.	10	CO3
Q 8	What are the major problems that arise in network when a mobile node moves from home network to foreign network? Explain how the mobile provides a solution to the problem of address mobility in wireless internet?	10	CO5
Q 9	Distinguish between connection oriented services and connectionless services.	10	CO4
OR			
Q 9	Using a Timing diagram, illustrate how a call to a mobile subscriber initiated by another mobile subscriber is established.	10	CO4

SECTION-C

Q 10	Identify and evaluate the advantages of the following and relate with the existing	20	CO2,
------	--	----	------

	tools/model/technology: a. eTOM Business Process Framework Level 1 b. IEEE 802.1		CO5
Q 11	The LTE network architecture network can be divided into how many main segments/subsystems. Give a complete breakdown of LTE network architecture. Support it with diagrams.	20	CO5
	OR		
Q 11	The UMTS network is divided into how many main segments/subsystems. Give a complete breakdown of the whole architecture. Support it with diagrams.	20	CO5

Name:	 UPES UNIVERSITY WITH A PURPOSE
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2019

Course: B.Tech CSE+TI

Program: Mobile Communication Network Design

Course Code: CSIB 350

Instructions: Attempt all the questions. This question paper contains 2 pages.

Semester: 6th

Time 03 hrs.

Max. Marks: 100

SECTION A

S. No.		Marks	CO									
Q 1	Which channels are used in mobile communication systems?	4	CO4									
Q 2	Compare LTE relay & LTE repeater.	4	CO1									
Q 3	Relate fraud with the mobile network security. Explain internal and external fraud.	4	CO2									
Q 4	Explain GSM network architecture with the help of neat diagram.	4	CO1									
Q 5	Give the number of carriers/TRX/Signal Channels/Comm. Channels for the GSM spectrum bands as given in table below:	4	CO3									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">S.no</th> <th style="width: 40%;">Starting frequency</th> <th style="width: 50%;">Ending frequency</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.</td> <td>892(UL)/937(D/L)</td> <td>895(UL)/940(D/L)</td> </tr> <tr> <td style="text-align: center;">2.</td> <td>910.5(U/L)/955.5(D/L)</td> <td>913.5(U/L)/958.5(D/L)</td> </tr> </tbody> </table>			S.no	Starting frequency	Ending frequency	1.	892(UL)/937(D/L)	895(UL)/940(D/L)	2.	910.5(U/L)/955.5(D/L)	913.5(U/L)/958.5(D/L)
S.no	Starting frequency			Ending frequency								
1.	892(UL)/937(D/L)			895(UL)/940(D/L)								
2.	910.5(U/L)/955.5(D/L)	913.5(U/L)/958.5(D/L)										

SECTION B

Q 6	Define a cluster. The formula for number of cells in cluster is given by $N=i^2 + j^2 + ij$ where $i \geq 0, j \geq 0$. Draw the clusters for various possible cluster sizes.	10	CO4
Q 7	Compare FDMA, TDMA & CDMA.	10	CO3
Q 8	What are channel assignment strategies? Explain different type of channel assignment strategies.	10	CO5
Q 9	Explain Handoff strategies in Mobile communication with the help of suitable diagram.	10	CO4
OR			
Q 9	Distinguish between connection oriented services and connectionless services.	10	CO4

SECTION-C

Q 10	Identify and evaluate the advantages of the following and relate with the existing tools/model/technology:	20	CO2, CO5
------	--	----	-------------

	a. eTOM Business Process Framework Level 0 b. IEEE 802.1		
Q 11	Give a complete breakdown of GPRS network architecture. Support it with diagrams.	20	CO5
	OR		
Q 11	The CDMA network is divided into how many main segments/subsystems. Give a complete breakdown of the whole architecture. Support it with diagrams.	20	CO5