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

Course: Mobile Communication Protocol   **Semester: II**
Program: B.Tech-CSE+MAD   **Time: 03 hrs.**
Course Code: CSMC 2002   **Max. Marks: 100**

Instructions: Attempt all the questions.

SECTION A

S.No.		Marks	CO
Q 1	Discuss the need of signal-modulation in brief. Discuss ASK and AM.	**4**	**CO2**
Q 2	Four 10-kbps connections are multiplexed together (using TDMA). Let a unit is of 2 bits. Find the duration of a frame and output bit rate.	**4**	**CO2**
Q 3	Discuss your understanding of "Orders-Down, Faults-Up".	**4**	**CO5**
Q 4	Differentiate between the two types of interferences in cellular network due to the frequency reuse pattern.	**4**	**CO1**
Q 5	Write down the major advantages of 2G cellular networks.	**4**	**CO3**

SECTION B

Q 6	Measure the traffic load in 'erlang' as well as in 'ccs' wherein a system, 23 suscribers call for a total of 75 minutes and 45 seconds in one hour. Also, compute the average hold time.	**10**	**CO2**
Q 7	Describe the various components of OSS.	**10**	**CO5**
Q 8	List the entities of mobile IP and describe data transfer from a mobile node to a fixed node and vice versa.	**10**	**CO4**
Q 9	Describe the GPRS network architecture with the help of a suitable diagram. OR Discuss the following: (a) TMSI (b) IMEI (c) HLR (d) CGI	**10**	**CO3**

	SECTION-C		
Q 10	(a) Describe the structure of a time-slot in a GSM-frame with the help of suitable diagram. (b) Name the requirements for a mobile IP and justify them. Does mobile IP fulfill them all?	**20**	**CO3 & CO4**
Q 11	Describe the LTE network architecture by detailing each of its components. OR (a) Discuss various types of frauds in telecom industry along with a proper categorization. (b) Differentiate between the agent advertisement and agent solicitation approaches of agent discovery in mobile-IP..	**20**	**CO3 or CO5& CO4**

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SECTION A

S.No.		Marks	CO
Q 1	Five 100-kbps connections are multiplexed together (using TDMA). Let a unit is of 10 bits. Find the duration of a frame.	4	CO2
Q 2	Differentiate between intra-cell handover and inter-cell inter-MSC handover in GSM.	4	CO3
Q 3	Discuss your understanding of frauds in telecom industry.	4	CO5
Q 4	Name the logical channels available in GSM with suitable categorization.	4	CO3
Q 5	Differentiate between access channels and paging channel in cdmaOne.	4	CO3
SECTION B			
Q 6	Describe the various BSS (Business Support System) components.	10	CO5
Q 7	Discuss the frame-hierarchy of GSM in detail.	10	CO3
Q 8	Distinguish between UMTS/FDD and UMTS/TDD.	10	CO3
Q 9	Explain the landline originated call establishment process in IS-95 with mentioning of each participating channel. OR Discuss the data encryption process in GSM with the suitable diagram.	10	CO3
SECTION-C			
Q 10	(a) Name the inefficiencies of mobile IP regarding data forwarding from a correspondent node to a mobile node. What are the optimizations and what additional problems do they cause? (b) Discuss the following management issues in mobile IP:	20	CO4 or CO5

	(i) Denial of Service (ii) Information Theft (iii) Insider attack (iv) Replay Attack		
Q 11	Distinguish between loose-coupling architecture and tight-coupling architecture for WLAN-Cellular architecture with suitale diagrams. OR Define the Following terms: (a) CoA (b) Triangular Routing (c) Reverse Tunneling (d) GGSN (e) MPE	**20**	**CO4 or CO4& CO3**