BE/ ETRX/ VIII/ CBHS / 28/11/18   **Q.P. Code :37962**

[Time: 3 Hours]   [Marks: 80]

Please check whether you have got the right question paper.

N.B: 1. Question.No.1 is compulsory.
      2. Attempt any three questions from the remaining five questions.

Q.1	Answer the following:	**20**
a)	Explain the authentication process in GSM.	
b)	Discuss the need for 3G cellular networks.	
c)	If there are 50 channels in a cell to handle all the calls and the average call holding time is 100s/call, how many calls per hour can be handled in this cell with a blocking probability of 2%? For number of channels = 50 and Pb = 2% Traffic intensity in Erlangs is 40.3.	
d)	Explain the Forward and Reverse channel structure in CDMA.	

Q.2 a)	Explain GSM frame and time slot structure.	**10**
b)	Explain GSM signaling and protocol architecture.	**10**

Q.3 a)	Explain CDMA reverse channel processing.	**10**
b)	Discuss mobility and resource management in CDMA.	**10**

Q.4 a)	Explain 4G-LTE architecture with a neat block diagram in detail.	**10**
b)	Explain cell splitting.	**04**
	If the radius of each new microcell is half that of the original cell, show that	**06**
	i) Traffic load increases four times	
	ii) Transmit power must be reduced by 12dB to maintain the S/N requirement with a path loss exponent of 4.	

Q.5 a)	Explain UMTS network architecture in detail with interfaces.	**10**
b)	Compare the characteristics of WCDMA and CDMA 2000.	**05**
c)	Explain GPRS network architecture.	**05**

Q.6	Write short notes on:	**20**
a)	Trunking and GoS	
b)	Mobile IP	
c)	MANET	
d)	Interfaces used in GSM systems	

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